

## STIC Database Tracking Number:

To: Examiner Justin Pats  
Location: KNX 5B07  
Art Unit: 3629  
Date: Wednesday, January 13, 2010  
Case Serial Number: 10/699020

From: Ginger R. DeMille  
Location: EIC3600  
KNX 4B68  
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[Ginger.demille@uspto.gov](mailto:Ginger.demille@uspto.gov)

## Search Notes

Dear Examiner Pats:

Please find attached the results of your search for the above-referenced case. The search was conducted using the Business Methods Template Databases on Dialog, ProQuest, and EBSCOHost.

I have listed *potential* references of interest in the first part of the search results. However, please be sure to scan through the entire report. There may be additional references that you might find useful.

If you have any questions about the search, or need a refocus, please do not hesitate to contact me.

Thank you for using the EIC, and we look forward to your next search!

***Note: EIC-Searcher identified "potential references of interest" are selected based upon their apparent relevance to the terms/concepts provided in the examiner's search request.***

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## I. Potential References of Interest

### A. Dialog

5/3,K/34 (Item 1 from file: 635)  
DIALOG(R)File 635:Business Dateline(R)  
(c) 2010 ProQuest Info&Learning. All rts. reserv.

0532290 94-87063  
Delrina acquires license to Reach workflow software  
Zankowicz, Josef  
Business Wire (San Francisco, CA, US) s1 p1  
PUBL DATE: 940922  
WORD COUNT: 591  
DATELINE: San Jose, CA, US

TEXT:

...experience to quickly create sophisticated forms applications with conditional routing and deploy them across their organization using their LAN-based e-mail systems.

With Reach workflow technology, FormFlow users will be able to automate and systematize more sophisticated workflow processes using a simple point and click approach .Workflow tasks can then be managed by viewing tables that show who originated the task, where the task is in the workflow, and what its status is.

Delrina's electronic forms strategy is to help companies build upon existing technology investments by allowing: DOS, Windows, Macintosh, and UNIX hardware; the most popular e-mail systems; the most popular desktop/SQL databases; and enterprise information sharing platforms, such as Lotus Notes and Microsoft Exchange; to be combined in forms-based applications.

With the rapid adoption of distributed LAN-based computing...

2/3,K/2 (Item 2 from file: 340)  
DIALOG(R)File 340:CLAIMS(R)/US Patent  
(c) 2010 IFI/CLAIMS(R). All rts. reserv.

04393837  
E/(A1) Project management for complex construction projects by monitoring subcontractors in real time  
(B2) Project management for complex construction projects by monitoring subcontractors in real time  
Inventors: Lewis Stacy (US); Fiely-Fisher Bronwyn (US); Freeman Darlene M (US); Halverson Mark (US)  
Assignee: (A1) Unassigned Or Assigned To Individual  
(B2) General Electric Capital Corp  
Assignee Code: (A1) 68000; (B2) 74493

Probable Assignee (A1): geamericom Communications  
Attorney, Agent or Firm: Buckley, Maschoff & Talwalkar LLC

Publication Number	Kind	Date	Application Number	Date
US 20020087381	A1	20020704	US 2000750350	20001229
US 7031930	B2	20060418	US 2000750350	20001229

(Cited in 003 later patents)

Prior Publication: US 20020087381 A1 20020704

Priority Applic: US 2000750350 20001229

Calculated Expiration: 20201229

Notes: Subject to any Disclaimer, the term of this patent is extended or adjusted under 35 USC 154(b) by 858 days.

Abstract: ...in specification or anticipates any other reason that might delay completion of construction as scheduled, the subcontractor selects from a computerized menu the appropriate new status for the subcontractor's task and provides other information relevant to the changed situation. The status change is displayed on a display device, an electronic dashboard, so as to be easily noticed, the dashboard also providing one-click links to a display showing how widespread are the problems and a display for on-line review and approval of the status change by a manager or engineer in charge of the project, who notes the status change on the display and with whatever input may be provided by the other persons notified of the status change, decides the best course of action to keep the construction on schedule.

15/3,K/20 (Item 11 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
(c) 2010 WIPO/Thomson. All rts. reserv.

00733768 \*\*Image available\*\*

GEOMETRIC DATA MANIPULATION  
MANIPULATION DE DONNEES GEOMETRIQUES

Patent Applicant/Assignee:

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designated states except: US)

Patent Applicant/Inventor:

PETERS Brian, TPLG Technologies Limited, 2 Le Bas Terrace, Leinster Road  
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(Designated only for: US)

Legal Representative:

BROPHY David, F.R. Kelly & Co., 27 Clyde Road, Ballsbridge, Dublin 4, IE  
Patent and Priority Information (Country, Number, Date):

Patent: WO 200046755 A1 20000810 (WO 0046755)

Application: WO 2000IE13 20000128 (PCT/WO IE00000013)

Priority Application: IE 9973 19990202 (IE U)

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB  
GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA

MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA  
UG US UZ VN YU ZA ZW  
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE  
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW SD SL SZ TZ UG ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 7762

Fulltext Availability:

Detailed Description

Detailed Description

... and segments which  
are wholly above the current position of the sweep  
line. The other part is those portions which  
temporarily terminate on the sweep line - segments  
which are going to continue through the sweep line.

(With regard to points, a point on the sweep line which  
is the end of a...1 derived. The  
original salient points are the 4 vertexes of the  
quadrilateral 20' and the 4 vertexes of the  
quadrilateral 21'; the derived salient point is the  
intersection of these quadrilaterals above the sweep  
line 25. (The quadrilaterals have a second  
intersection below the sweep line, but this  
intersection happens to occur at...

...them moved on to the next salient  
point, and the process is repeated. When the sweep  
plane eventually reaches the end of the event point  
schedule and has been processed for that position, the  
process is complete. The derived bodies list will then  
contain 3 bodies 20", 21", and 22, as...

...through them extending on below the  
sweep line) are compared for possible intersections.

In this case, point pair 27 and 28 do not yield an  
intersection point; pair 28 and 24 yield an  
intersection (point 33, Fig. 4); and point pair 24 and  
29 do not yield an intersection. ...the event point  
schedule.

Further, the topology manager searches to detect  
whether any elements have become finalized (at this  
stage, finalized elements may be vertexes, line  
segments, or polygons). If so, the topology manager  
enters the finalized elements into the derived bodies  
listing for the plane sweep (i.e. the final derived  
bodies listing), and deletes them as appropriate from  
the sweep status schedule. The sweep plane then moves  
on to its next position. The whole process is then  
repeated, until the sweep plane has passed through all

salient points.

Some complications which do not affect the basic principles of the system...

...progresses, the topology manager may start to construct apparently distinct polygons or polyhedra which later turn out to be parts of a single polygon or polyhedron. Fig. 8A shows an example, a U-shaped re entrant polygon. A sweep line passing downwards over this will initially detect/ two separate polygons 40A...

...be performed.

The salient points for the intersections of each curved body with other bodies are preferably chosen at the top-most and bottom-most points of the intersection of the bodies. However, it may be more convenient to choose those salient points in some other way, in which case some back-tracking...

2/3,K/13 (Item 6 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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01138388 \*\*Image available\*\*

FLEXIBLE WORKFLOW MANAGEMENT

GESTION DU FLUX DE TRAVAIL FLEXIBLE

Patent Applicant/Assignee:

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(Residence), DE (Nationality), (For all designated states except: US)

Patent Applicant/Inventor:

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SADIQ Wasim, 39 Kaboora Cres., Westlake, QLD 4074, AU, AU (Residence), AU  
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ORLOWSKA Maria E, 5 Boyd Tce, Brookfield, 4069, AU, AU (Residence), AU  
(Nationality), (Designated only for: US)

Legal Representative:

SCHIUMA Daniele (agent), Muller-Bore & Partner, Grafinger Strasse 2,  
81671 Munchen, DE,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200460038 A2 20040722 (WO 0460038)

Application: WO 2004EP9 20040102 (PCT/WO EP04000009)

Priority Application: US 2003438297 20030107; US 2003671876 20030929

Designated States:

(All protection types applied unless otherwise stated - for applications 2004+)

AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM  
DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC  
LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO  
RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW  
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE  
SI SK TR

(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

(AP) BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM  
Publication Language: English  
Filing Language: English  
Fulltext Word Count: 14868

Fulltext Availability:  
Detailed Description

#### Detailed Description

... is a screenshot 900 of a status graph showing a status of the workflow 600 of FIG. 6. In FIG. 9, a section 902 provides information about the process, the instance, and one or more of the workitem performers 516. A section 904 provides links to related information, and a section 906 shows status information about the workflow 600, or, more particularly, about the particular instance of the workflow 600. A sub-section 908 provides additional user options related to status information, including a button 910 for displaying more status options and a button 912 for refreshing the section 906.

The workflow 600 may be displayed in various ways to demonstrate its current status, such as which of the included tasks is currently active. For example, a color of the corresponding task could be changed, or the task could be highlighted or otherwise designated on the screen.

14

FIG. 10 is a screenshot 1000 for showing work item details for a task within the WO 2004/060038 PCT/EP2004/000009 and the fragments 708-728 of FIG. 7. As already described, the fragments may be combined in ...

Paste Text Here

[Insert]

## B. Additional Resources Searched

No references of interest obtained from additional resources searched.



## **II. Inventor Search Results from Dialog**

No inventor papers of interest found.

### III. Text Search Results from Dialog

#### A. Full-Text NPL & Foreign Patent Databases

? show files;ds  
File 15:ABI/Inform(R) 1971-2010/Jan 07  
(c) 2010 ProQuest Info&Learning  
File 16:Gale Group PROMT(R) 1990-2010/Jan 08  
(c) 2010 Gale/Cengage  
File 148:Gale Group Trade & Industry DB 1976-2010/Jan 08  
(c) 2010 Gale/Cengage  
File 160:Gale Group PROMT(R) 1972-1989  
(c) 1999 The Gale Group  
File 275:Gale Group Computer DB(TM) 1983-2010/Dec 03  
(c) 2010 Gale/Cengage  
File 621:Gale Group New Prod.Annou.(R) 1985-2010/Nov 25  
(c) 2010 Gale/Cengage  
File 9:Business & Industry(R) Jul/1994-2010/Jan 07  
(c) 2010 Gale/Cengage  
File 20:Dialog Global Reporter 1997-2010/Jan 06  
(c) 2010 Dialog  
File 610:Business Wire 1999-2010/Jan 08  
(c) 2010 Business Wire.  
File 613:PR Newswire 1999-2010/Jan 08  
(c) 2010 PR Newswire Association Inc  
File 24:CSA Life Sciences Abstracts 1966-2009/Jan  
(c) 2009 CSA.  
File 634:San Jose Mercury Jun 1985-2009/Dec 31  
(c) 2010 San Jose Mercury News  
File 636:Gale Group Newsletter DB(TM) 1987-2010/Dec 09  
(c) 2010 Gale/Cengage  
File 810:Business Wire 1986-1999/Feb 28  
(c) 1999 Business Wire  
File 813:PR Newswire 1987-1999/Apr 30  
(c) 1999 PR Newswire Association Inc  
File 13:BAMP 2010/Jan 07  
(c) 2010 Gale/Cengage  
File 75:TGG Management Contents(R) 86-2010/Dec W4  
(c) 2010 Gale/Cengage  
File 95:TEME-Technology & Management 1989-2009/Nov W5  
(c) 2009 FIZ TECHNIK  
File 348:EUROPEAN PATENTS 1978-201001  
(c) 2010 European Patent Office  
File 349:PCT FULLTEXT 1979-2009/UB=20091231|UT=20091224  
(c) 2010 WIPO/Thomson

Set	Items	Description
S1	69189	(INFORMATION OR DATA OR CONTEXT OR CONTEXUAL OR CONTENT OR PROCESS OR THREAD)(2S)(PYRAMID? OR POLYHEDRON OR POLYGONAL)
S2	511240	(INFORMATION OR DATA OR CONTEXT OR CONTEXUAL OR CONTENT OR PROCESS OR THREAD)(2S)(HIERARCHY OR TIER)
S3	577200	S1 OR S2
S4	3870911	SCHEDULE OR SCHEDULING OR SCHEDULES OR TIMELINE? ? OR TIME- ( )LINE? ?
S5	1754497	FLOW( )LINE? ? OR FLOWLINE? ? OR RAY? ? OR LINE( )SEGMENT? ?

S6 739136 NODE OR NODES OR NODAL OR POINT? ?(3N) (CONNECT? OR INTERSE-  
 CTION)  
 S7 148 LINKED()DATA()STRUCTURE? ?  
 S8 206575 (INFORMATION OR DATA OR CONTEXT OR CONTEXUAL OR CONTENT OR  
 PROCESS OR THREAD) (2S) (TREE)  
 S9 531 (INFORMATION OR DATA OR CONTEXT OR CONTEXUAL OR CONTENT OR  
 PROCESS OR THREAD) (2S) (QUADTREE)  
 S10 1182731 MILESTONE? ? OR MILE()STONE? ?  
 S11 770191 S3 OR S8 OR S9  
 S12 4918562 S4 OR S10  
 S13 83 S11(6S)S12(6S)S5(6S) (S6 OR S7)  
 S14 49 S13 FROM 348,349  
 S15 28 S14 NOT AY>2003  
 S16 34 S13 NOT S14  
 S17 4 S16 NOT PY>2003  
 S18 3 RD (unique items)  
 ? t18/3,k/

18/3,K/1 (Item 1 from file: 16)  
 DIALOG(R)File 16:Gale Group PROMT(R)  
 (c) 2010 Gale/Cengage. All rts. reserv.

08519941 Supplier Number: 73241669 (USE FORMAT 7 FOR FULLTEXT)  
 Streaming and caching: Bandwidth Efficiency Is Top Priority.  
 Via Satellite, v16, n4, pNA  
 April 10, 2001  
 Language: English Record Type: Fulltext  
 Document Type: Magazine/Journal; Trade  
 Word Count: 5222

... protocol encapsulators based on null packet optimization (NPO) technology.

This feed will be uplinked from Los Angeles by BT Broadcast Services via its Marina Del Rey teleport to Galaxy X, and then on to 246 nodes located at local TV stations nationwide. From there, the IP feed is broadcast to homes which have digital tuner-equipped devices. TV stations simply offer the iBlast content as an integral part of their 19.4 Mbps ATSC DTV broadcasts. Trials are underway in California, Arizona and Florida. iBlast plans to have signals...

...are using satellite broadcasting for most of our distribution for the simple reason that it is far better than a T1 network after the 80th node."

For its multicast network architecture, iBlast has turned to U.K.-based NDS Group plc to provide its MediaStorm data broadcasting system as the back end system. Luckett describes a two-tier data broadcast architecture with applications running atop the Media Storm.

"Our goal is to have no wasted bits anywhere on the network. We are offering a...

...In the near future, homes with 80 GB of storage on their hard drives will not be uncommon."

NDS has been improving its Media-Storm data broadcasting product over the past two years, and Luckett is quite impressed with the system's robust software architecture, among other things. NDS bases its

...

...content provider management software (CPMS) at the network operations center, the operator and content provider can define the data stream, and oversee all the playout scheduling remotely so that the right content goes to the right node, and then on to the right audience at the right time," says Yoram Feldman, vice president of data broadcasting at NDS.

In other words, the...

? show files;ds

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(c) 2009 CSA.

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File 348:EUROPEAN PATENTS 1978-201001  
(c) 2010 European Patent Office

File 349:PCT FULLTEXT 1979-2009/UB=20091231|UT=20091224  
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S10    1182731    MILESTONE? ? OR MILE()STONE? ?  
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S12    4918562    S4 OR S10  
S13    83    S11(6S)S12(6S)S5(6S) (S6 OR S7)  
S14    49    S13 FROM 348,349  
S15    28    S14 NOT AY>2003  
S16    34    S13 NOT S14  
S17    4    S16 NOT PY>2003  
S18    3    RD (unique items)  
? t18/3,k/all; t15/3,k/all

18/3,K/1        (Item 1 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2010 Gale/Cengage. All rts. reserv.

08519941        Supplier Number: 73241669 (USE FORMAT 7 FOR FULLTEXT)  
Streaming and caching: Bandwidth Efficiency Is Top Priority.  
Via Satellite, v16, n4, pNA  
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goes to the right node, and then on to the right audience at the right time," says Yorai Feldman, vice president of data broadcasting at NDS.

In other words, the...

18/3,K/2 (Item 1 from file: 275)  
DIALOG(R)File 275:Gale Group Computer DB(TM)  
(c) 2010 Gale/Cengage. All rts. reserv.

01888772 SUPPLIER NUMBER: 17990952 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
Novell's future (and yours). (Company Business and Marketing)  
Steinke, Steve  
LAN Magazine, v11, n2, p67(5)  
Feb, 1996  
ISSN: 1069-5621 LANGUAGE: English RECORD TYPE: Fulltext; Abstract  
WORD COUNT: 3244 LINE COUNT: 00274

... to irritate Microsoft) while sapping Novell's attention and burning up its money.

It's a journalistic convention to associate these direct-assault policies with Ray Noorda, Novell's chairman until 1994. But don't forget that Noorda was the inventor of the concept of "coopetition; which was certainly a big...

...it arrived. The NDS-capable client for Windows 95--a major development effort involving a new code base for all 32-bit clients--is on schedule, and ...the yellow pages for an Internet that includes not only the public Internet of today, but also a host of private networks and innumerable network nodes embedded in office machines, industrial equipment, vehicles, and household appliances.

NetWare versions preceding NetWare 4.x relied upon a database (the bindery) located on each server for information about users, volumes, files, print queues, user memberships in groups, user and group rights, passwords, and any other aspects of the server. NDS provides a trans-network hierarchy of these objects, which can be organized in any arbitrary form--for example, by location or by department.

Users log on to the network--not...

...have rights. With the appropriate permissions, users anywhere in the world can access files, applications, or other services as easily as they can access local data. New users need not be configured for every server they may ultimately need to access.

The value of NDS increases as networks become interlinked and...

...Novell has moved to make NDS the GroupWise messaging directory. NDS can be extended to incorporate such user attributes as job title, supervisor name, telephone information, and other human resources characteristics--even photographs--eliminating the need for multiple standalone databases. Because NetWare security is enabled through NDS, the directory can provide...

18/3,K/3 (Item 1 from file: 20)  
DIALOG(R)File 20:Dialog Global Reporter  
(c) 2010 Dialog. All rts. reserv.

27260723 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
Q3 2002 Cadence Design Systems Financial Results Conference Call - Final -  
Part 1  
FAIR DISCLOSURE WIRE  
October 15, 2002  
JOURNAL CODE: WFDW LANGUAGE: English RECORD TYPE: FULLTEXT  
WORD COUNT: 4530

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... Our ability to play the design partner role for our customers is critical because the requirements for design are changing dramatically.

At nanometer design, process nodes are 130, 90 or even 65 nanometers, wires are everything. In design of a chip demands a different approach, one that allows designers to see...

... our new technology and the road map going forward. We're getting very positive feedback.

We launched the Encounter System on September 18th, ahead of schedule, providing a platform that solves the most difficult nanometer design problems. The success we're experiencing, I think, is an indicator of a bright future...Officer to talk about the market and what's happening with customers. PENNY HERSHER, EXECUTIVE VICE PRESIDENT AND CHIEF MARKETING OFFICER, CADENCE DESIGN SYSTEMS: Thanks, Ray. As Ray mentioned, Cadence as the most complete technology portfolio in the world. Let me take you through the highlights of the quarter. First in Digital IC ...

... single data model solved these problems. Within the Cadence Encounter System, we released the latest upgrades version 2.1 into production in August, ahead of schedule. This is a fully integrated nanometer design flow and it's capable of handling 50 million gates hierarchial. We also institute a new low price...

15/3,K/1 (Item 1 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2010 European Patent Office. All rts. reserv.

02483498

Method and system for incrementally moving teeth  
Verfahren und System zur inkrementellen Bewegung von Zahnen  
Procede et systeme d'accroissement du mouvement des dents  
PATENT ASSIGNEE:

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PATENT (CC, No, Kind, Date): EP 1929974 A2 080611 (Basic)  
APPLICATION (CC, No, Date): EP 2008101273 980619;  
PRIORITY (CC, No, Date): US 50342 P 970620; US 947080 971008  
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE  
RELATED PARENT NUMBER(S) - PN (AN):  
EP 1369091 (EP 2003012114)  
EP 989828 (EP 2098931428)  
INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):  
IPC + Level Value Position Status Version Action Source Office:  
A61C-0007/00 A I F B 20060101 20080508 H EP  
ABSTRACT WORD COUNT: 83  
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FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200824	900
SPEC A	(English)	200824	13987
Total word count - document A			14887
Total word count - document B			0
Total word count - documents A + B			14887

...SPECIFICATION herein incorporated by reference.

The algorithm is centered around a recursive subdivision of the space occupied by an object, which is organized in a binary-tree like fashion. Triangles are used to represent the teeth in the DDS. Each node of the tree is referred to as an oriented bounding box (OBB) and contains a subset of triangles appearing in the node's parent. The children of a parent node contain between them all of the triangle.data stored in the parent node.

The bounding box of a node is oriented so it tightly fits around all of the triangles in that node. Leaf nodes in the tree ideally contain a single triangle, but can possibly contain more than one triangle. Detecting collisions between two objects involves determining if the OBB trees of...

...intersect. <FIGREF IDREF=F0015>Fig. 9A</FIGREF> sets forth a flow chart depicting a simplified version of a recursive collision test to check if a node "N1" from a first object intersects with node "N2" of a second object. If the OBBs of the root nodes of the trees overlap, the root's children are checked for overlap. The algorithm proceeds in a recursive fashion until the leaf nodes are reached. At this point, a robust triangle intersection routine is used to determine if the triangles at the leaves are involved in a collision. The present invention provides several enhancements to the collision...

...This approach stems from the observation that there are parts of the model which will never be involved in a collision, and consequently the OBB tree for such parts of the model need not be computed. The OBB trees are expanded by splitting the internal nodes of the tree as necessary during the recursive collision determination algorithm, as depicted in <FIGREF IDREF=F0016>Fig. 9B</FIGREF>.

In another embodiment of the present invention, the triangles in the model which are not required for collision data may also be specifically excluded from consideration when building an OBB tree.

As depicted in <FIGREF IDREF=F0017>Fig. 9C</FIGREF>, additional information is provided to the collision algorithm to specify objects in motion. Motion may be viewed at two levels. Objects may be conceptualized as "moving" in a global sense, or they may be conceptualized as "moving" relative to other objects. The additional information improves the time taken for the collision detection by avoiding recomputation of collision information between objects which are at rest relative to each other since the state of the collision between such objects does not change.

The software of...

...use a "movie" feature to automatically animate the movement from initial to target states. This is helpful for visualizing overall component movement throughout the treatment process.

Above it was described that the preferred user interface for component identification is a three dimensional interactive GUI. A three-dimensional GUI is also preferred...

...impacting of teeth below the gumline is a concern. These template models could, for example, comprise a digitized representation of the patient's teeth x-rays.

The software also allows for adding annotations to the datasets which can comprise text and/or the sequence number of the apparatus. The annotation is...

15/3,K/2 (Item 2 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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01667139

System for incrementally moving teeth  
System zum inkrementellen Bewegen von Zahnen  
Systeme pour deplacer les dents de facon incrementale  
PATENT ASSIGNEE:

Align Technology, Inc., (8182630), 881 Martin Avenue, Santa Clara, CA  
95050, (US), (Proprietor designated states: all)

INVENTOR:

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PATENT (CC, No, Kind, Date): EP 1369091 A1 031210 (Basic)  
EP 1369091 B1 091014

APPLICATION (CC, No, Date): EP 2003012114 980619;

PRIORITY (CC, No, Date): US 50342 P 970620; US 947080 971008

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE

RELATED PARENT NUMBER(S) - PN (AN):

EP 989828 (EP 98931428)

RELATED DIVISIONAL NUMBER(S) - PN (AN):

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INTERNATIONAL PATENT CLASS (V7): A61C-007/00

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

A61C-0007/00 A I F B 20060101 20031015 H EP

ABSTRACT WORD COUNT: 83

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Figure number on first page: NONE

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CLAIMS A	(English)	200350	263
CLAIMS B	(English)	200942	313
CLAIMS B	(German)	200942	322
CLAIMS B	(French)	200942	333
SPEC A	(English)	200350	13442
SPEC B	(English)	200942	12054
Total word count - document A			13707
Total word count - document B			13022
Total word count - documents A + B			26729

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The bounding box of a node is oriented so it tightly fits around all of the triangles in that node. Leaf nodes in the tree ideally contain a single triangle, but can possibly contain more than one triangle. Detecting collisions between two objects involves determining if the OBB trees of the objects intersect. Fig. 9A sets forth a flow chart depicting a simplified version of a recursive collision test to check if a node "N1" from a first object intersects with node "N2" of a second object. If the OBBs of the root nodes of the trees overlap, the root's children are checked for overlap. The algorithm proceeds in a recursive fashion until the leaf nodes are reached. At this point, a robust triangle intersection routine is used to determine if the triangles at the leaves are involved in a collision.

The present invention provides several enhancements to the collision...

...This approach stems from the observation that there are parts of the model which will never be involved in a collision, and consequently the OBB tree for such parts of the model need not be computed. The OBB trees are expanded by splitting the internal nodes of the tree as necessary during the recursive collision determination algorithm, as depicted in Fig. 9B.

In another embodiment of the present invention, the triangles in the model which are not required for collision data may also be

specifically excluded from consideration when building an OBB tree. As depicted in Fig. 9C, additional information is provided to the collision algorithm to specify objects in motion. Motion may be viewed at two levels. Objects may be conceptualized as "moving" in a global sense, or they may be conceptualized as "moving" relative to other objects. The additional information improves the time taken for the collision detection by avoiding recomputation of collision information between objects which are at rest relative to each other since the state of the collision between such objects does not change.

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DIALOG(R)File 348:EUROPEAN PATENTS  
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01251033

System and method for rendering using ray tracing  
System und Verfahren zur Darstellung mit Strahlverfolgung  
Systeme et procede de rendu par pojection de rayon

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PATENT (CC, No, Kind, Date): EP 1081655 A2 010307 (Basic)  
EP 1081655 A3 030813  
EP 1081655 B1 070207

APPLICATION (CC, No, Date): EP 2000114885 000712;

PRIORITY (CC, No, Date): US 388338 990901

DESIGNATED STATES: DE; FR; GB

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS (V7): G06T-015/50; G06T-015/40

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

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CLAIMS A	(English)	200110	324
CLAIMS B	(English)	200706	423
CLAIMS B	(German)	200706	401
CLAIMS B	(French)	200706	469
SPEC A	(English)	200110	4669
SPEC B	(English)	200706	4718
Total word count - document A			4994
Total word count - document B			6011
Total word count - documents A + B			11005

...SPECIFICATION then no information is placed back into the ray queues.

When a processor element completes processing the current block, i.e., there are no more rays on the current block's queue), the processor element signals the scheduler to select a new block for the PE to process. The scheduler selects the best block based on the current state of the ray queues and the current state of the memories according to the heuristic metric. When all ray queues are empty (for ray casting), processing is completed and image samples can be collected for display or printing.

#### Scheduling Algorithms

The following scheduling algorithms can be used to select an order for processing the blocks.

##### Max Work

This algorithm schedules the block which, for example, contains the highest number of rays in its ray queue waiting to be processed.

##### Max Loaded Work

This algorithm examines the blocks loaded into the lowest level of the memory hierarchy, and thus the closest to the processor elements, and selects the block with the highest number of rays in its queue. If all loaded blocks have empty ray queues, i.e., there is no work to be done, then the Max Work algorithm is used to select the next best block to schedule, regardless of where in the memory hierarchy the next best block is currently stored.

##### Geometric

This algorithm takes advantage of the fact that the first rays, i.e., there is no reflection or refraction, rays from either a light source or a viewing frustum all travel outward from the originating point. Thus, blocks are processed in order from closest to the ray originating point 340 to farthest from the ray originating point. This way, before any block is processed, all the blocks that may send any rays into that block have already been processed. This way each

block is processed exactly once. Of course, this does not hold for ray tracing, where spawned rays travel in an almost random directions with no common originating point. This is why other algorithms are still needed.

#### Dependency Graph

Rather than using the number of rays in the ray queue as a measure of the best block to process, this method utilizes a dependency graph. This method takes advantage of interframe coherence over time. For each frame, a dependency graph is generated. The dependency graph indicates which blocks send rays to which other blocks. For a later frame, the viewpoint (or camera angle) has probably moved only a small amount. Thus, most block used for...

...built from the previous frame as a guide to approximate which blocks should be processed before which other blocks.

Figure 5a shows an example of rays 501 cast from a viewpoint 502 through a scheduling grid 503. If there is no early ray termination, then it is possible for some rays to traverse as many as five blocks. Figure 5b shows a dependency graph 510. In the graph, the nodes 511 are blocks, and the directed edges indicate rays leaving one block and entering the next. In Figure 5b, it is difficult to see the flow of rays from block-to-block. Figure 5c shows the same dependency graph as Figure 5b but the nodes are rearranged so that all directed edges flow from top to bottom. Here, the optimal order for processing the blocks is clear.

For a simple 2D 3x3 scheduling grid with ray casting, it is easy to draw a dependency graph and to rearrange it so as to determine the optimal processing order of the blocks. However, the scheduling grids for the system 100 can be 3D sampled data of a considerable size. While this makes it difficult to do a manual analysis, it is still possible to solve the optimal order computationally.

In addition, the system according to the invention also supports ray tracing. Figure 6a shows the same simple 3x3 scheduling grid 503 for a ray tracing case where an object 600 is located in the center of the grid and the rays include reflected rays 601. Figure 6c shows that the corresponding dependency graph 610 is less clear on indicating the order of processing blocks. The dashed edges 611 indicate dependencies due to the secondary reflected rays 601 causing cycles in the graph. In one ordering, primary rays are processed before reflected rays.

Figures 7a and 7b shows how temporal coherence is attained. In Figure 7a, a grid 700 is superimposed on a graphical object 701, e.g. a sphere. Block 702 required for ray tracing are indicated in black. The rays 702 for a frame at time t0)) are generated from a camera position 704. At time t1)), the camera position 705 has shifted. A large ...

...will soon be needed.

#### Min Work

This is the logical opposite the Max Work scheduling algorithm. This algorithm replaces blocks with a small number of rays to be processed before blocks with a large number of rays.

#### Dependency Graph

This uses interframe coherence and the dependency graph built from the

previous frame, in a manner similar to the scheduling algorithm.  
Although the...

...SPECIFICATION the FIFO buffer, the scheduler, independent of the specific visualization application, tries to move the blocks as close to the PE's as possible.

The data move through the level of the memory in different sized chunks depending on the level. For example, volumetric data for a specific frame can be divided into a hierarchical spatial subdivision. Thus, when volumetric data are needed by a processor element, and the data are only present in the highest level of the memory hierarchy, a large chunk of the volume will be moved to the next lower level, and an even smaller chunk will be moved all the way to the lowest level closest to the processor element.

Initially, the data are stored in the main memory 220. The CPU 210 generates initial ray information and loads the ray queues 320. The dispatcher starts transferring data to the DRAM 206 on the board 230 when the first block is ready to be processed. Blocks can also be loaded directly into the...

...be achieved with a single read from main memory, and simultaneous write to both on-board DRAM and ASIC eDRAM.

As blocks are processed, the ray queues for the current block are read to determine how the ray intersects the sampled and geometry data in the block. When a ray exits the block and enters a next scheduling grid block, this information is placed on an appropriate ray queue for the next block. If the ray has reached full opacity, for ray casting, then no information is placed back into the ray queues.

When a processor element completes processing the current block, i.e., there are no more rays on the current block's queue, the processor element signals the scheduler to select a new block for the PE to process. The scheduler selects the best block based on the current state of the ray queues and the current state of the memories according to the heuristic metric. When all ray queues are empty (for ray casting), processing is completed and image samples can be collected for display or printing.

#### Scheduling Algorithm

The following scheduling algorithm using a dependency graph is used to select an order for processing the blocks.

This method utilizes a dependency graph as a measure of...

...to process. It takes advantage of interframe coherence over time. For each frame, a dependency graph is generated. The dependency graph indicates which blocks send rays to which other blocks. For a later frame, the viewpoint (or camera angle) has probably moved only a small amount. Thus, most block used for...

...built from the previous frame as a guide to approximate which blocks should be processed before which other blocks.

Figure 5a shows an example of rays 501 cast from a viewpoint 502 through a scheduling grid 503. If there is no early ray termination, then it is possible for some rays to traverse as many as five blocks. Figure 5b shows a dependency graph 510. In the graph, the nodes 511 are blocks, and the directed edges indicate rays



leaving one block and entering the next. In Figure 5b, it is difficult to see the flow of rays from block-to-block. Figure 5c shows the same dependency graph as Figure 5b but the nodes are rearranged so that all directed edges flow from top to bottom. Here, the optimal order for processing the blocks is clear.

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Figures 7a and 7b shows how temporal coherence is attained. In Figure 7a, a grid 700 is superimposed on a graphical object 701, e.g. a sphere. Block 702 required for ray tracing are indicated in black. The rays 702 for a frame at time t0)) are generated from a camera position 704. At time t1)) , the camera position 705 has shifted. A large ...

15/3,K/4 (Item 4 from file: 348)  
 DIALOG(R)File 348:EUROPEAN PATENTS  
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01251031

Programmable architecture for visualizing sampled and geometry data  
 Programmierbarer Aufbau zur Visualisierung von Abtastdaten und  
 geometrischen Daten

Structure programmable pour visualiser des donnees echantillonnees et  
 geometriques

PATENT ASSIGNEE:

MITSUBISHI DENKI KABUSHIKI KAISHA, (208589), 2-3, Marunouchi 2-chome,  
 Chiyoda-ku, Tokyo 100-8310, (JP), (Proprietor designated states: all)

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Marks, Joseph W., 61 Dalton Road, Belmont, Massachusetts 02478, (US)  
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LEGAL REPRESENTATIVE:

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 (DE)

PATENT (CC, No, Kind, Date): EP 1081646 A2 010307 (Basic)  
 EP 1081646 A3 040107  
 EP 1081646 B1 050420

APPLICATION (CC, No, Date): EP 2000114883 000712;

PRIORITY (CC, No, Date): US 388337 990901

DESIGNATED STATES: DE; FR; GB

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI  
INTERNATIONAL PATENT CLASS (V7): G06T-001/20; G06T-015/50  
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NOTE:

Figure number on first page: 1

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CLAIMS A	(English)	200110	369
CLAIMS B	(English)	200516	443
CLAIMS B	(German)	200516	428
CLAIMS B	(French)	200516	495
SPEC A	(English)	200110	4847
SPEC B	(English)	200516	4983
Total word count - document A			5217
Total word count - document B			6349
Total word count - documents A + B			11566

...SPECIFICATION then no information is placed back into the ray queues.

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Although the...

...SPECIFICATION to 0.65 seconds per operation could quickly add up to non-interactive frame rates for even a small number of low level tasks.

Exploiting data coherence by caching is a another well known technique to increase efficiency in computer graphics, see Sutherland et al. in "A characterization of hidden surface..."

...March 1974. Increasing the coherence of a computation can reduce the amount of memory used, the time it requires, or both. In systems that use ray tracing, the coherence of rays traveling through a scene can be increased by traversed ray trees to process rays into coherent bundles.

Similarly, rays with common origins can be gathered into frustums. This reduces the time to find intersecting objects. Rays can be reordered using space filling curves over the image plane to improve the coherence of spawned rays in a depth-first ray tracer. Monte Carlo ray tracing systems that is designed to improve coherence across all levels of the memory hierarchy, from processor caches to disk storage.

Pharr et al. in "Rendering complex scenes with Memory-Coherent Ray Tracing," Proceedings of SIGGRAPH 97, pp. 101-108," described a cached ray tracing system. There, texture tiles, scene geometry, queued rays, and image samples were stored on disk. Camera generated rays were partitioned into groups. Groups of rays were scheduled for processing depending on which parts of the scene was stored in main memory, and the degree to which processing the rays would advance the rendering. Scheduled rays were stored in queues in main memory. Scene geometry was added to main memory as needed. Any new rays that were generated during the ray tracing were added to the queues of waiting rays. Essentially, this system can be characterized as a memory hierarchy with two levels of cache, disk and main memory, and a single processor. This is basically a software solution to a caching problem. Also, Pharr...

...a single image at the time, and has coherency algorithm is only concerned with spatial locality.

To gain certain advantages, the system was designed to process only a single type of geometric primitive. "A distinguishing feature of our ray tracer is that we cache a single type of geometric primitive: triangles. This has a number of advantages. Ray intersection tests can be optimized for a single case, and memory management for the geometry cache is easier, since there is less variation in the..."

...the system for handling large databases of triangles; this allows our system to efficiently handle a wide variety of common sources of geometry, including scanned data, scientific data, and tessellated patches. A potential drawback of this single representation is that other types of primitives, such as spheres, require more space to store after..."

...this disadvantage" ibid, at p. 102.

Their geometry cache was organized in what they called "voxel" or geometry grids to enclose triangles. Note that in ray tracing, the term "voxel" has a totally different meaning than in volume rendering. In volume rendering, a voxel is a single sample in a three-dimensional

(volume) data set. To distinguish these totally different meanings, in the description below, the term "voxel" always means a volume sample, and the term "block" refers to...

- ...good level of granularity for caching. However, they also used an acceleration grid holding a few hundred triangles for finer granularity. For the purpose of scheduling blocks to be processed, they associated a cost value and a benefit value with each block. The cost was based on the computational complexity of...
- ...work on by selecting the block with the highest ratio of benefit to cost.

Palmer, M.E. et al.: "Exploiting Deep Parallel Memory Hierarchies for Ray Casting Volume Rendering", Proceedings of the IEEE Symposium on Parallel Rendering (PRS '97), Phoenix, Oct. 20 - 21, 1997, Proceedings of the IEEE Symposium on Parallel...

- ...1997-10-20), pages 15 - 22, 115 - 116, XP000779035 ISBN:1-58113-010-4, disclose techniques to efficiently exploit all levels of the deep memory hierarchy of a distributed power challenge array, on which a logical global address space for volume blocks with caching is implemented. This optimal exploitation of the entire memory hierarchy from the processor cache to the interconnection network between distributed nodes -allows an efficient rendering of a very large dataset.

It is desired to render scenes with ray tracing that are expressed in more than one single graphical primitive such as triangles. Furthermore, it is desired to gain additional performance improvements by using a software and hardware cache. In addition, it is desired to improve block scheduling beyond a simple cost-benefit algorithm. It is also desired to render a sequence of images or frames, and to provide temporal coherence in addition...

- ...provide a programmable hardware architecture to perform complex visualization tasks.

#### Summary of the Invention

It is an object of the invention to provide an improved ray tracing architecture for both sampled data and geometry data. The sampled data can be 2D, 3D, or sampled data in higher dimensions. The geometry data can be polygons, parametric patches, or analytically defined data. It is another object, to provide a hierarchical memory with embedded-DRAM technology to achieve real-time rendering rates. It is a further object, to...

- ...by an order of magnitude using multiple levels of memory coherency. It is also an object to provide a programmable visualization engine that supports segmentation, ray tracing rendering, and other graphical processes.

The objects according to the invention are solved by a programmable visualization apparatus comprising the features of claim 1...

- ...a dependency graph of the plurality of blocks is provided for determining the spatial and temporal order of the blocks.

More particularly, a method traces rays through graphical data. The graphical data may include sampled and geometry data. The method may partition the graphical data into a plurality of blocks according to a scheduling grid. For each block, a ray queue can be

generated. Each entry in the ray queue may represent a ray to be traced through the block. The ray queues may be ordered spatially and temporally using the dependency graph. The rays may be traced through the blocks according to the ordered list.

#### Brief Description of the Drawings

Figure 1 is a block diagram of a logical...

...then no information is placed back into the ray queues.

When a processor element completes processing the current block, i.e., there are no more rays on the current block's queue), the processor element signals the scheduler to select a new block for the PE to process. The scheduler selects the best block based on the current state of the ray queues and the current state of the memories according to the heuristic metric. When all ray queues are empty (for ray casting), processing is completed and image samples can be collected for display or printing.

#### Scheduling Algorithms

The following scheduling algorithms can be used to select an order for processing the blocks.

##### Max Work

This algorithm schedules the block which, for example, contains the highest number of rays in its ray queue waiting to be processed.

##### Max Loaded Work

This algorithm examines the blocks loaded into the lowest level of the memory hierarchy, and thus the closest to the processor elements, and selects the block with the highest number of rays in its queue. If all loaded blocks have empty ray queues, i.e., there is no work to be done, then the Max Work algorithm is used to select the next best block to schedule, regardless of where in the memory hierarchy the next best block is currently stored.

##### Geometric

This algorithm takes advantage of the fact that the first rays, i.e., there is no reflection or refraction, rays from either a light source or a viewing frustum all travel outward from the originating point. Thus, blocks are processed in order from closest to the ray originating point 340 to farthest from the ray originating point. This way, before any block is processed, all the blocks that may send any rays into that block have already been processed. This way each block is processed exactly once. Of course, this does not hold for ray tracing, where spawned rays travel in an almost random directions with no common originating point. This is why other algorithms are still needed.

##### Dependency Graph

Rather than using the number of rays in the ray queue as a measure of the best block to process, this method utilizes a dependency graph. This method takes advantage of interframe coherence over time. For each frame, a dependency graph is generated. The dependency graph indicates which blocks send rays to which other blocks. For a later frame, the viewpoint (or camera angle) has probably

moved only a small amount. Thus, most block used for...

...built from the previous frame as a guide to approximate which blocks should be processed before which other blocks.

Figure 5a shows an example of rays 501 cast from a viewpoint 502 through a scheduling grid 503. If there is no early ray termination, then it is possible for some rays to traverse as many as five blocks. Figure 5b shows a dependency graph 510. In the graph, the nodes 511 are blocks, and the directed edges indicate rays leaving one block and entering the next. In Figure 5b, it is difficult to see the flow of rays from block-to-block. Figure 5c shows the same dependency graph as Figure 5b but the nodes are rearranged so that all directed edges flow from top to bottom. Here, the optimal order for processing the blocks is clear.

For a simple 2D 3x3 scheduling grid with ray casting, it is easy to draw to a dependency graph and to rearrange it so as to determine the optimal processing order of the blocks. However, the scheduling grids for the system 100 can be 3D sampled data of a considerable size. While this makes it difficult to do a manual analysis, it is still possible to solve the optimal order computationally.

In addition, the system according to the invention also supports ray tracing. Figure 6a shows the same simple 3x3 scheduling grid 503 for a ray tracing case where an object 600 is located in the center of the grid and the rays include reflected rays 601. Figure 6c shows that the corresponding dependency graph 610 is less clear on indicating the order of processing blocks. The dashed edges 611 indicate dependencies due to the secondary reflected rays 601 causing cycles in the graph. In one ordering, primary rays are processed before reflected rays.

Figures 7a and 7b show how temporal coherence is attained. In Figure 7a, a grid 700 is superimposed on a graphical object 701, e.g. a sphere. Block 702 required for ray tracing are indicated in black. The rays 702 for a frame at time t0)) are generated from a camera position 704. At time t1)), the camera position 705 has shifted. A large ...

...will soon be needed.

#### Min Work

This is the logical opposite the Max Work scheduling algorithm. This algorithm replaces blocks with a small number of rays to be processed before blocks with a large number of rays.

#### Dependency Graph

This uses interframe coherence and the dependency graph built from the previous frame, in a manner similar to the scheduling algorithm.

Although the...

15/3,K/5 (Item 5 from file: 348)  
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01122618

A COMPUTER SYSTEM AND PROCESS FOR EXPLAINING BEHAVIOUR OF A MODEL THAT MAPS  
INPUT DATA TO OUTPUT DATA

RECHNERSYSTEM UND VERFAHREN ZUR ERKLARUNG DES VERHALTENS EINES MODELLES DAS  
EINGANGSDATEN AUF AUSGANGSDATEN ABBILDET  
SYSTEME ET PROCEDE INFORMATIQUES SERVANT A EXPLIQUER LE COMPORTEMENT D'UN  
MODELE FAISANT CORRESPONDRE DES DONNEES D'ENTREE A DES DONNEES DE  
SORTIE

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CLAIMS B	(French)	200322	511
SPEC B	(English)	200322	3679
Total word count - document A			0
Total word count - document B			5065
Total word count - documents A + B			5065

...SPECIFICATION has been reached. By recursively splitting each subspace, each split defined by the data splitting module 16 may be represented by a decision tree. Each node of the decision tree stores an indication of the dimension which is most salient for the input data and the threshold used by the node for splitting the input data into subspaces. The decision tree thus hierarchically defines, for each subspace of the input space, the dimension and threshold used...

...subspaces also may be performed in parallel and in a pipelined manner, as shown in Fig. 3. In particular, the sensitivity analysis module 12 and data splitting module 16 of Fig. 1 may be considered a data splitter 30 as shown in Fig. 3. The model 11 is not shown in this figure, because it may be considered to be used in a preprocessing step to generate the partial derivatives from which sensitivity measures are computed. A data splitter 30 receives input data 31 and generates output subspaces 32 and 33. Additional data splitters 34 and 36 may be provided to operate in parallel on the output subspaces 32 and 33 to provide additional subspaces.

A more detailed block diagram of a data splitting module 16 of Fig. 1 in one embodiment will now be described in connection with Fig. 4.



In Fig. 4, the sensitivity measures are used by a dimension selection module 40 to identify a dimension 42 on which the input data set 10 will be split. A threshold 48 is selected by a threshold selection module 46 for the selected dimension 42. This selection may be performed using the input data set 10, for example by identifying the mean, median or mode or other function of the values in that dimension in the input data set. The threshold 48 is input into a comparator 49. Each input datum also is input to the comparator 49 for comparison with the threshold 48. The data output by the multiplexer 47 thus falls into one of two subspaces as specified by the comparator.

The flow chart of Fig. 5 describes in...

...selected based on the sensitivity measures as indicated in step 50. A threshold for the selected dimension is determined in step 52 from the input data set. For each input datum, as indicated in step 54, the value of the selected dimension is compared to the determined threshold in step 56...

...be presented to a user for example by a computer display or printout in a number of formats. By representing the description using a decision tree, each node of the tree may be described using a rule in a first order predicate calculus. The user may traverse the tree and interactively expand or contract each node to view the description for each node of the tree.

A general purpose computer system may be used to implementing the system shown above using a computer program. Such a computer system typically includes a main unit connected to both an output device which displays information to a user and an input device which receives input from a user. The main unit generally includes a processor connected to a memory system...

...interconnection mechanism.

It should be understood that one or more output devices may be connected to the computer system. Example output devices include a cathode ray tube (CRT) display, liquid crystal displays (LCD), printers, communication devices such as a modem, and audio output. It should also be understood that one or...

...input devices may be connected to the computer system. Example input devices include a keyboard, keypad, track ball, mouse, pen and tablet, communication device, and data input devices such as sensors. It should be understood the invention is not limited to the particular input or output devices used in combination with...

...operating system, of which WindowsNT, Linux, UNIX, System 7, DOS, VMS and OS8 are examples, which controls the execution of other computer programs and provides scheduling, debugging, input/output control, accounting, compilation, storage assignment, data management and memory management, and communication control and related services. The processor and operating system define...

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01113426

DISTRIBUTED COMPUTING ENVIRONMENT USING REAL-TIME SCHEDULING LOGIC AND TIME  
DETERMINISTIC ARCHITECTURE

VERTEILTE RECHNERUMGEBUNG MIT ECHT-ZEIT ABLAUFFOLGENLOGIK UND  
ZEIT-DETERMINISTISCHER ARCHITEKTUR

ENVIRONNEMENT INFORMATIQUE DISTRIBUE A LOGIQUE D'ORDONNANCEMENT EN TEMPS  
REEL ET ARCHITECTURE A DETERMINATION TEMPORELLE

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SPEC B	(English)	200330	13276
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Total word count - documents A + B			14702

...SPECIFICATION low cost 1435 are interrelated in an abstracted  
characterization.

Turning now to Figure 15, the general process 1500 executed respective  
to scheduling in each member node 108, 107 (any one of control  
computer 506, historian computer 507, control computer 504, historian  
computer 505, user interface 503, network support 502, and network switch  
501) is discussed. Each member node 108, 107 is responsible for  
receiving the common clock signal; synchronizing to that common clock  
signal; receiving the local event table 114, 116 from the...

...switch 501.

Steps 1501 and 1502 - Since the network is so highly dependent on a  
global time base, the first step 1501 at a member node 108, 107 is  
to receive the common clock signal. The clock signal is communicated as a  
message from the master scheduler 106 in network switch 501 to each of

the member nodes 108, 107. The member node 108, 107 receives this clock signal in step 1501, stamps the actual time of reception, and validates the integrity of this message. The validated message...

...optionally determined (optionally if the nature of the time message is a pulse instead of a data bearing message).

Steps 1503 and 1504 - Each member node 108, 107 must now synchronize to the common clock signal. The process of performing this synchronization can be broken up into two separate tasks: first...

...time such that the start of each time period which is defined by the common clock signal occurs at the same time in the member nodes 108, 107 as it does in the master scheduler 106 in network switch 501.

Step 1505 - Once the synchronization of a member node 108, 107 to the master scheduler 106 in network switch 501 is complete, the member node 108, 107 must receive the local event table 114, 116 from the master scheduler 106 in network switch 501. The local event table 114, 116 contains the schedule for the communications which are involving this member node. Note that the reception of the local event table 114, 116 itself is scheduled by the master scheduler 106 in network switch 501. Therefore, the first time that the node is to receive the local event table 114, 116 it must be available to receive that message at any possible time that the local event table 114, 116 might be received.

Step 1506 - The next step for the member node 108, 107 is to formulate the task execution list. The task execution list is formulated from the local event table 114, 116 and the additional tasks which the member node 108, 107 must do which are not described in the local event table 114, 116. The local event table 114, 116 which is communicated from...

...is received from the master scheduler 106 in network switch 501 is relative to the master scheduler 106 in network switch 501. Although the member node 108, 107 is synchronized with the master scheduler 106 in network switch 501, there is still an inherent delay in the propagation through the media being communicated. Either this delay must be accounted for by the master scheduler 106 in network switch 501, the member node, or the communication window of time increment must be sufficiently large that the inherent delay is included as overhead in the time allotted to the connection. In the preferred embodiment, this delay is accounted for in the member node.

Substep 1506B: Schedule the tasks which are dependent on the communication tasks. There are tasks which must be scheduled prior to a transmission (for example, the transfer of...example, the arbitration of the data between the multiple, different sources in a redundant computing environment and the transfer of data to memory). The member node 108, 107 is responsible for the scheduling of these tasks.

Substep 1506C: Schedule the tasks which are neither described by the local event table 114, 116 nor are dependent on the communications. There are tasks which the member node 108, 107 must accomplish in addition to communication related tasks. These tasks may be for the operation of other I/O, localized display, etc.

Step 1507 - The next step for the member node 108, 107 is to execute the task execution list. Each task in the list contains the task which is to be executed, the start time for the task, and any parameters which are necessary in order to successfully complete the task.

Step 1508 - The member node 108, 107 can now formulate the

communication request list, which is a list of the member nodes 108, 107 to which this member node 108, 107 is desiring to communicate. The information which is included in this communication request list is the source node identifier, destination node identifier, and the total length of the communication.

Step 1509 - This communication request list is communicated to the master scheduler 106 in network switch 501 for consideration in its scheduling. At this point, the member node 108, 107 has performed all of the necessary functions in a particular time period. The next step 1510 is to determine whether or not it...

...1501 of receiving the reference moment message. If it is not time to receive the next reference moment message, then the logic of the member node may forward to step 1505.

As one contemplated embodiment, Figure 16 presents the general data flow diagram 130 of Figure 1 as a data flow...

...to the central processing unit, an optional output display (which can include, without limitation, a printer, printing terminal where output is printed on paper, cathode ray tube monitor, and/or flat panel monitor) connected to the central processing unit, a computer clock pulse generator, and a connection to electrical power for...

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01019851

METHOD AND SYSTEM FOR INCREMENTALLY MOVING TEETH  
VERFAHREN UND SYSTEM FUR AUF INKREMENTALE WEISE BEWEGENDE ZAHNE  
PROCEDE ET SYSTEME DE REPOSITIONNEMENT PROGRESSIF DES DENTS  
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SPEC B	(English)	200337	11803
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Total word count - documents A + B			14668

...SPECIFICATION herein incorporated by reference.

The algorithm is centered around a recursive subdivision of the space occupied by an object, which is organized in a binary-tree like fashion. Triangles are used to represent the teeth in the DDS. Each node of the tree is referred to as an oriented bounding box (OBB) and contains a subset of triangles appearing in the node's parent. The children of a parent node contain between them all of the triangle data stored in the parent node.

The bounding box of a node is oriented so it tightly fits around all of the triangles in that node. Leaf nodes in the tree ideally contain a single triangle, but can possibly contain more than one triangle. Detecting collisions between two objects involves determining if the OBB trees of the objects intersect. Fig. 9A sets forth a flow chart depicting a simplified version of a recursive collision test to check if a node "N1" from a first object intersects with node "N2" of a second object. If the OBBs of, the root nodes of the trees overlap, the root's children are checked for overlap. The algorithm proceeds in a recursive fashion until the leaf nodes are reached. At this point, a robust triangle intersection routine is used to determine if the triangles at the leaves are involved in a collision.

The present invention provides several enhancements to the collision...

...This approach stems from the observation that there are parts of the model which will never be involved in a collision, and consequently the OBB tree for such parts of the model need not be computed. The OBB trees are expanded by splitting the internal nodes of the tree as necessary during the recursive collision determination algorithm, as depicted in Fig. 9B.

In another embodiment of the present invention, the triangles in the model which are not required for collision data may also be specifically excluded from consideration when building an OBB tree. As depicted in Fig. 9C, additional information is provided to the collision algorithm to specify objects in motion. Motion may be viewed at two levels. Objects may be conceptualized as "moving" in a global sense, or they may be conceptualized as "moving" relative to other objects. The additional information improves the time taken for the collision detection by avoiding recomputation of collision information between objects which are at rest relative to each other since the state of the collision between such objects ...use a "movie" feature to automatically animate the movement from initial to target states. This is helpful for visualizing overall component movement throughout the treatment process.

Above it was described that the preferred user interface for component identification is a three dimensional interactive GUI. A three-dimensional GUI is also preferred...  
...impacting of teeth below the gumline is a concern. These template models could, for example, comprise a digitized representation of the patient's teeth x-rays.

The software also allows for adding annotations to the datasets which can comprise text and/or the sequence number of the apparatus. The annotation is...

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00884189

Document analysis systems and processes  
System und Verfahren fur Dokumentenanalyse  
Systeme et procede pour l'analyse de documents  
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Total word count - documents A + B			10994

...SPECIFICATION represent relationships between tokens or objects and other complex objects. As shown in Fig. 3, complex objects are represented as a directed graph, where each node defines a relationship that exists between other objects in the graph. In many instances, each node is a new object. As an example, Fig. 3 shows the data structure to represent a machine print object that is contained within a box. A machine print object 320 is represented as

machine print 321 and a box 322. The box 322 is represented by its components, vertical lines 323 and 324 and horizontal lines 325 and 326. The data contained within each node, or object, consists of an object identifier, a confidence level, reference to the constituent objects or tokens that compose the new object, and information describing the size and location of the object.

The information contained within the knowledge database 210 is partitioned into a hierarchy of knowledge. Complex objects are structured from more primitive objects. Information can be therefore partitioned as shown in Fig. 4. Tokens 430 are at the bottom of the hierarchy. The next level up, 429, are objects formed by the spatial relationships between tokens. For example two horizontal lines .05 inches apart. The next level in the hierarchy 428 includes more objects formed by geometric relationships between objects or tokens. For example line intersections forming boxes. The highest level may be spatial relationships between tokens and objects 427 as described for Fig. 5.

The following information describing spatial relationships between tokens may be represented in the system.

- \* groups of tokens based on horizontal location
- \* groups of tokens based on vertical location...can include line intersections, simple and complex boxes.

Line intersections are self explanatory. Simple boxes are boxes that are created by examining the endpoints of line segments. Complex boxes are boxes that are created by including line intersections, rather than only analyzing line endpoints for boxes. In general, simple boxes form the...

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00333245  
HIGH PERFORMANCE GRAPHICS WORKSTATION AND METHOD OF OPERATING THEREFOR  
HOCHLEISTUNGSFAHIGES GRAPHISCHES ENDGERAT SOWIE BETRIEBSVERFAHREN DAFUR  
POSTE DE TRAVAIL GRAPHIQUE A HAUTE PERFORMANCE ET METHODE D'EXPLOITATION  
POUR CELA

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CLAIMS B	(English)	EPAB96	1122
CLAIMS B	(German)	EPAB96	988
CLAIMS B	(French)	EPAB96	1290
SPEC A	(English)	EPABF1	18501
SPEC B	(English)	EPAB96	18699
Total word count - document A			20846
Total word count - document B			22099
Total word count - documents A + B			42945

...SPECIFICATION required to represent the display device and the processing capability of the graphics system required to process the output data for display on a cathode ray tube. For instance, with respect to color alone, eight bits of information per pixel may be required to store information on the red, green and...

...are stored in a structure memory component in the graphics subsystem. The three-dimensional graphics data structures are each implemented as a hierarchical graphics data node structure in the structure memory. For a thorough discussion of the principal concepts of interactive computer graphics as generally employed by the system of the invention, reference should be made to Fundamentals of Interactive Computer Graphics by J. D. Foley and A. Van Dam (Addison-Wesley 1982).

Each node is defined as a fundamental memory unit to contain graphics data or commands relating to the primitives, transformations, attributes and so on of the graphics structure being built pursuant to a specific application program residing in...

...asynchronously operational structure walker in the graphics subsystem traverses a special control structure stored in the structure memory on a continuing basis to read and process requests for traversal of the nodes of the graphics structures and to send the data and command information contained in the nodes down a graphics pipeline for processing, manipulation and display by the graphics processing components of the graphics subsystem.

Pursuant to an important feature of the partitioned among the host and graphics subsystem components to accept requests for graphics structures traversals made by competing application programs, and to subsequently schedule and perform such traversals in a manner such that each of



the competing graphics applications views the graphics processing subsystem as its own and is able to be executed with a most efficient utilization of the system components. The hierarchical node memory structure, asynchronous memory traversal and supervising traversal control functions together facilitate a high performance three-dimensional display capability within the system by providing an efficient allocation of system resources to store complex graphics data structures and to process the graphics data structures in an ordered and coordinated fashion. The system of the invention effectively utilizes efficient coordination and control of ongoing, data driven, asynchronous operation of the graphics subsystem components to place all of the system resources equally at the disposal of a multiple of application programs...

...from the world coordinate system of the user to appropriate geometric coordinates suitable for the physical display device of the workstation, i.e. the cathode ray tube. A window is a rectangular array of pixels which may be partially or wholly visible on the display device depending upon the size of the window relative to the physical dimensions of the display screen. Windows are also in a hierarchy with a "parent" window and sub-windows or "children". Windows may be resized and sub-windows used for clipping by the parent when a sub...

...the X Window System developed under the auspices of the Massachusetts Institute of Technology as a royalty free industry standard. Pursuant to the invention, the data generated by the windowing system to create and define the window coordinates and attributes is uniquely identified by the traversal control system for correlation to the hierarchical graphics data node structure of the object to be displayed within the rectangular array of the window.

Accordingly, the asynchronous traversal by the structure walker is able to provide correlated graphics structure data and commands and window data to the graphics processing components. The window data-graphics structure correlation function of the traversal control further facilitates high performance three-dimensional graphics display by permitting the utilization of a highly effective window system such as the X Window System which was developed primarily for use in two dimensional, bit mapped graphics systems. The window identification data for correlation to the three-dimensional node memory structures systematically merges a three-dimensional functionality into the advantageous X Window System.

Pursuant to another significant feature of the invention, a separate two dimensional, bitmap graphics system is provided in parallel to the three dimensional components to process two dimension application programs. The bit map graphics system has resources suitable for two dimensional graphics including a bitmap memory and a rendering processor to traverse bitmap data commands in structure memory. Moreover, the structure memory is shared by the parallel three dimensional and two dimensional graphics systems to serve both as the three dimensional graphics structure memory and the two dimensional bit map memory. The rendering processor is also shared by the parallel graphics systems to process both bit map graphics and polygon rendering for three dimensional objects. In this manner, the system resources having three dimensional capabilities are not overburdened with...

...SPECIFICATION are stored in a structure memory component in the

graphics subsystem. The three-dimensional graphics data structures are each implemented as a hierarchical graphics data node structure in the structure memory. For a thorough discussion of the principal concepts of interactive computer graphics as generally employed by the system of the invention, reference should be made to Fundamentals of Interactive Computer Graphics by J.D. Foley and A. Van Dam (Addison-Wesley 1982).

Each node is defined as a fundamental memory unit to contain graphics data or commands relating to the primitives, transformations, attributes and so on of the graphics and process requests for traversal of the nodes of the graphics structures and to send the data and command information contained in the nodes down a graphics pipeline for processing, manipulation and display by the graphics processing components of the graphics subsystem.

The invention is defined in claims 1...

...function is partitioned among the host and graphics subsystem components to accept requests for graphics structure traversals made by competing application programs, and to subsequently schedule and perform such traversals in a manner such that each of the competing graphics applications views the graphics processing subsystem as its own and is able to be executed with a most efficient utilization of the system components. The hierarchical node memory structure, asynchronous or independent (in the following we use "asynchronous" only) memory traversal and supervising traversal control functions together facilitate a high performance three-dimensional display capability within the system by providing an efficient allocation of system resources to store complex graphics data structures and to process the graphics data structures in an ordered and coordinated fashion. The system of the invention effectively utilizes efficient coordination and control of ongoing, data driven, asynchronous operation of the graphics subsystem components to place all of the system resources equally at the disposal of a multiple of application programs...

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display by permitting the utilization of a highly effective window system such as the X Window System which was developed primarily for use in two dimensional, bit mapped graphics systems. The window identification data for correlation to the three-dimensional node memory structures systematically merges a three-dimensional functionality into the advantageous X Window System.

Pursuant to another significant feature of the invention, a separate two dimensional, bitmap graphics system is provided in parallel to the three dimensional components to process two dimension application programs. The bit map graphics system has resources suitable for two dimensional graphics including a bitmap memory and a rendering processor to traverse bitmap data commands in structure memory. Moreover, the structure memory is shared by the parallel three dimensional and two dimensional graphics systems to serve both as the three dimensional graphics structure memory and the two dimensional bit map memory. The rendering processor is also shared by the parallel graphics systems to process both bit map graphics and polygon rendering for three dimensional objects. In this manner, the system resources having three dimensional capabilities are not overburdened with...

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00984066 \*\*Image available\*\*  
A PRINTING CARTRIDGE WITH CAPACITIVE SENSOR IDENTIFICATION  
CARTOUCHE D'IMPRESSION COMPORTANT UNE FONCTION D'IDENTIFICATION DES  
CAPTEURS CAPACITIFS

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AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ  
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LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI  
SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW  
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR  
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
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Detailed Description

#### Detailed Description

... by truncation, and this value used as a lookup for the cubic approximation of fp.

The calculation of fa, can therefore be represented as a process with the inputs and outputs as illustrated in Fig. 135 with an actual process for calculating fp is as shown in Fig. 136 where the following constants are set by software.

#### Constant Value

K, XLT

K2 YLT

K3 ZLT...applied to an image, the ambient light contribution is performed once for each pixel, and does not depend on the bump-map.

The ambient calculation process can be represented as a process with the inputs and outputs as illustrated in Fig. 13 1. The implementation of the process requires multiplying each pixel from the input image (0d) by a constant value (I0,ka), as shown in Fig. 138 where the following constant is...

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00982500 \*\*Image available\*\*

METHOD AND SYSTEM FOR VALUING INTELLECTUAL PROPERTY  
PROCEDE ET SYSTEME D'EVALUATION DE PROPRIETE INTELLECTUELLE

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Patent and Priority Information (Country, Number, Date):

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LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI  
SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

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Fulltext Availability:  
Detailed Description

#### Detailed Description

... the general valuation process  
carried out by the system;  
Figure 4 is a structural diagram of a general artificial neural network  
(ANN) with four input nodes, four hidden nodes and four  
output nodes and weighted interconnections between nodes;  
Figure,5 is a flow diagram depicting the mechanism by which the  
artificial neural network is trained to predict values according  
to the method of...the licensor and the country of the licensee?  
How are the royalty rates paid under the license (timing of)? Are  
there any upfront payments or milestone payments?  
What is the remaining life of the IP?  
Is there ongoing support from the licensor?  
Are there any regulatory issues?

I

The above information...The above lists are not exhaustive and it is  
likely that other parameters will be important in specific industries or  
will become evident in time.

#### Information Loading

Figure details the overall process by which information is  
introduced into

1@ I

the system and the various databases comprising the information  
stores

I! I

are loaded with data.

Licensing and sale transactions are analyzed in order to dissect the  
information in the Transaction Database 1 0 and extract relevant  
information  
into separate data...

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00979605 \*\*Image available\*\*  
SYSTEM FOR PROVIDING ALERT-BASED SERVICES TO MOBILE STATIONS IN A WIRELESS  
COMMUNICATIONS NETWORK  
SYSTEME DE DISTRIBUTION DE SERVICES D'AVERTISSEMENT A DES STATIONS MOBILES  
DANS UN RESEAU DE COMMUNICATION SANS FIL  
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 Gauchetiere Street West, Suite 3400, Montreal, Quebec H3B 4W5, CA,  
 Patent and Priority Information (Country, Number, Date):  
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 Priority Application: US 2001305580 20010716; US 2002359793 20020226; US  
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 AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ  
 EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
 LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI  
 SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW  
 (EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LU MC NL PT SE SK TR  
 (OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
 (AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW  
 (EA) AM AZ BY KG KZ MD RU TJ TM  
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Fulltext Availability:  
 Detailed Description

Detailed Description  
 ... conditions, which are described further on in-this specification.

D  
 (3) Data structure S<sub>j</sub> is initially created in the following manner.

(i) compute for each node the nearest alert region applicable to  
 users in category j.

SUBSTITUTE SHEET (RULE 26)

(ii) find a planar subdivision in which each cell contains exactly one  
 node (see Fig.

7A). One such planar subdivision is the Voronoi diagram 720 of the  
 nodes

71 0. Algorithms for computing the Voronoi diagram of a set of points  
 will be known to those of ordinary skill in the art. Note...computed once  
 and stored until all categories have been processed. The result is the  
 creation of

L 0 multiple cells 73 0, one surrounding each node 71 0;

(iii) merge together cells of the subdivision having the same nearest

alert region (see Fig. 7B). One method for doing this is by...

...following merge step. If there are two adjacent cells (e.g., 730A, 73013) in the .5 subdivision such that the alert region nearest to the nodes in one cell equals the alert region nearest to nodes in the other cell, remove from the subdivision those segments that lie on the boundaries of both cells. Repeat this step until no such adjacent...

...table in step (1)(iii) using the cells 740; and  
(v) the subdivision found in step (3)(iii) defines a partition of the set of nodes, where two nodes belong to the same block of the partition if they lie in the same cell of the subdivision. Apply heuristics to reduce the number of line segments defining the planar subdivision found in step (3)(iii) without changing the partition of nodes. For example, the cells 740 from Fig. 713 will become the cells 740' in Fig. 7C.

One heuristic that is suitable for use with step (3)(v) uses the following improvements.

With reference to Fig. 8A, for example, consider a pair of line segments L1 and L2 sharing an endpoint P such that no other line segment in the planar subdivision is incident to P. With reference to Fig. 813, let L denote the line segment connecting the endpoint of L1 that is not P to the endpoint of L2 that is not P. Check whether the triangle formed by L, L1 and L2 contains any nodes. If not (which is the case in Fig.

#### SUBSTITUTE SHEET (RULE 26)

Other heuristics that are suitable for use with (3)(v) can be derived to the subdivision found in step (3)(iii) to reduce the number of line segments. Specifically, allow a node V to move to a different cell C if the travel time from the node V to the alert region associated with cell C - from the table in step (1)(iii)- approximates (to within a prescribed or absolute error) the travel time from node V to the nearest alert region. For example, modifying the heuristic L 5 described in step (3)(v), if the triangle formed by L, L1 and L2 contains nodes, then replacing L1 and L2 by L would change which cell contains those nodes; still, perform the replacement if for each of those nodes the travel time to the alert region associated with the new cell is not significantly greater (e.g., by 10%) than the travel time to the actual nearest alert region.

2 0

(4) Data structure S<sub>j</sub> is updated in the following manner.

(i) find the set of nodes whose travel time to the new alert region is less than the travel time to the previously chosen alert. This step can be done quickly by 2 5 using a traditional shortest-path search rooted at the new alert region, modified not to explore the neighbours of any node V whose travel time to the new alert region is greater than the travel time to the alert region associated with the cell containing node V; and

3 0 (ii) create a polygon (or set of polygons) enclosing the set of nodes found in step (4)(i), and excluding other nodes. This can be done in several ways. One way is to find the convex hull of the set of nodes found, and then perturb the boundary of the convex

hull to exclude other nodes. Another way

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00962256

ANTIBODIES SPECIFIC FOR CD44V6

ANTICORPS SPECIFIQUES CONTRE CD44V6

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LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI  
SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW  
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR  
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW  
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Detailed Description  
Claims

Claim



... 99mTc Technetium 99m (half-life 6 hours)

TLC Thin Layer Chromatography

Tmax Time point at which the maximum drug concentration is observed

TNM Tumour Node Metastasis ...propose a safe dose for first and consecutive infusions with <sup>186</sup>Re-labelled hMAb BIWA 4 for further studies.

To obtain initial results on a dose schedule for repeated dosing.

## 2.2 PRIMARY VARIABLES

Safety: clinical laboratory tests, human-anti-human-antibody (HAHA) assessments, vital signs measurements and adverse events. Efficacy: biopsy biodistribution data (Part A only) and radioimmunoscintigraphic images (Part A and B including dosimetry for Part B of the trial). \* Pharmacokinetic results.

## SECONDARY VARIABLES

A secondary variable...4.

### 3.1 Part A:

This part of the clinical trial was an uncontrolled, rising dose sequential group study. It was designed to provide initial data on the safety and tolerability of a single infusion of <sup>99m</sup>Tc-labelled hMAb BIWA 4, to investigate the pattern and level of biodistribution and to... Moreover, the amount of <sup>99m</sup>Tc in biopsies from tumour site(s) and normal tissues in the surgical specimen was measured. Tumour sites and tumour infiltrated nodes were examined for the presence of CD44v6 antigen by immunohistochemical techniques. The first three patients were administered ...was reached. Patients were observed for occurrence of adverse events. Radioimmunoscintigraphic scans were performed.

### 3.1.3 STUDY PROCEDURES AT EACH VISIT

#### 3.1.3.1 Visit Schedule

##### a) Screening visit

Before entry into the study each patient was screened for eligibility. Demographics and medically relevant history were recorded, concomitant therapy was recorded...was made and blood as well as urine safety laboratory assessments were done. A blood sample for HAHA-testing was also taken. A Chest X-ray was made and a full disease assessment (CTAM, ear-nose-throat [ENT] examination) was performed. At the end of this visit the results of the...linker change. Instead patients who responded to the first dose of <sup>186</sup>Re-BIWA 4 were eligible for a second administration. They underwent the same visit schedule as for the first administration.

### 3.2 DISCUSSION OF STUDY DESIGN INCLUDING THE CHOICE OF CONTROL GROUPS

The aim of the present study was to...drug-related Common Toxicity Criteria (CTC) grade 4 haematology and grade 3 non-haematology toxicity a further three patients were treated with the respective dose tier (for further dosing details refer to section 3.4. and 3.5). The dose of BIWA 4 administered was based on previous results with nINIAb...the results from Part A of the trial (see also section 3.4. 1). The starting dose level for radioactivity chosen was based on previous data suggesting that a dose of 20 mCi/m<sup>2</sup> may be a safe dose (see also section 3.4.2). The criteria for efficacy which applied...be. feasible if the patient was prematurely removed from the study because of voluntary withdrawal. A case was considered not evaluable if adequate follow-up information was not available. Any unevaluable patients were planned to be replaced. If the patient discontinued early from the study, the reason had to be documented...post-infusion blood samples for HARA determination or pharmacokinetics, the reason had to be documented. If a patient developed a serious adverse event the study schedule had to

be followed as closely as possible depending on the serious adverse events (SAE).

### 1.5 3A TREATMENTS

#### 3 1 Treatments administered

Patients in...and neck tumours (n--54) and by the majority of cells within these tumours. A comparable expression was observed for sixty-eight tumour infiltrated lymph nodes from neck dissection specimens (R97-2054). The reactivity pattern. of hMAb BIWA 4 in human normal tissues is provided in Appendix HI of the protocol...and the radioactivity in pellet and supernatant were determined in a gamma counter and the percentage bound and free radiolabelled AIM calculated (LKBWallac 1218 CompuGamma). Data were graphically analysed in a modified Lineweaver Burk plot and the immunoreactive fraction was determined by linear extrapolation to conditions representing infinite antigen excess. In...Food and Drug Administration (FDA) 1994 "Points to consider" document on MAbs used in clinical phase I studies in cancer patients, a standardised downstream purification process, which has been validated for efficient virus removal, was applied to the purification of BIWA 4 material. Four model viruses were included in ... the validation QvIuLV, PsRV, REO-3, SV 40). The concentrated bulk harvest was examined for the retrovirus titer to ensure that the subsequent downstream purification process was capable of adequately removing the retrovirus. Data on removal of endotoxins were within the acceptance limits (< 0. 0 1 EU/mg) and were available for the bulk product. Furthermore pyrogenicity testing according...Labelling and Supply

BIWA 4 was supplied by Boehringer Ingelheim. The Netherlands. It was produced by Boehringer Ingelheim, Germany using a GMP manufacturing and purification process and filled in vials as a sterile, non-pyrogenic solution containing 25 mg hMAb BIWA 4 in 5 mL ...being optimal for mMAb U36. To confirm that this dose also was adequate for the intermediate affinity of hMAb BIWA 4 and to obtain initial information on the variability of the tumour uptake the biodistribution was assessed at 25, 50 and 100 mg total hMAb BIWA 4 and three evaluable patients...a dose of 50 mCi/m<sup>2</sup> "Re-BIWA 4.

#### 3 5 Selection and timing of dose for each subject

##### 3 5.1 Dosage and Treatment Schedule

2-5 The investigators were allowed to administer the trial drug at any time. The time elapsed between radiolabelling and administration, however, should not exceed...consent x

Demographics X

Conc. Therapy x X X x x X X X

Medical History X

Physical Examination X x

ECG X

Chest X-ray x

Blood safety analysis x I X x x xi xI

Urine safety analysis x X X

Pregnancy test X X

HAHA assessment x 2...Conc. Therapy x x x X x x x 2@ 31 41 5@ 6

Medical History x

Physical Examination x 6

ECG x

Chest X-ray X

Blood safety analysis xI xI xi x I x 1 2@ 3@ 47 5@ 6

Urine safety analysis x X 6

Pregnancy test x...or loss to follow-up. CT thorax was done at baseline and repeated at follow-up if there were abnormalities.

### 3 1.1 Radioimmunoscinigraphyanddosimetry

The data obtained from radioimmunoscinigraphy (RIS) were presented qualitatively for both Part A and B (i.e. uptake in tumour, bone marrow, liver, lung, intestine, kidney and...hrs after infusion. At 21 hrs p.i. planar and SPECT images of the head and neck were acquired. A calibration source also was acquired. Data was stored to enable quantitative analysis.

#### .5 Part B

With a large field of view dual headed gamma camera equipped with a low energy collimator...a low energy collimator. Acquisition required at least thirty minutes. Twenty percent symmetric windows were centred at the 137 keV photon peaks.

Planar and SPECT data acquisition parameters

Planar imaging included the following minimal requirements: matrix 128x128 (detail) or 256 x 256 (whole body) and a minimum of 400000 counts with...

...imaging included the following minimal requirements: 64 images, matrix size 64 x 64, 360 degree circular orbit, 60 second acquisitions per angle.

Analvsis of the data

At ...system had to include center of rotation determination.

Toniogrphic processing

A filtered back projection algorithm was used for tomographic image reconstruction using a ramp filter.

Data storag

All planar images and tomographic data had to be stored pennanently on magnetic tape or optical disc. For tomographic studies, original projecting images and reconstructed studies had to be written to...the front and slides from the front and back.

2 The size of the surgical specimen was assessed. 3 . Biopsies of primary tumour, suspect lymph node, and if possible from normal tissues in 1-5 the surgical specimen like nonnal mucosa, normal lymph node, fat and muscle were taken. All biopsies were weighed and the amount of 99'Tc was measured. All data were converted to percentages injected dose ...

...dissecting the stemocleidomastoid muscle (a structure with a high radiodensity), a specimen radiograph was made to show the exact size and location of the lymph nodes involved. This radiograph was made while the specimen was being immersed in ethanol 96%, which has the same X-ray absorption as fat.

6 All the nodes visualised with the X-ray were indicated on the Polaroid and specimen radiograph.

7 All the nodes found by examining the surgical specimen and by X-ray were dissected from the specimen.

8 All macroscopically negative nodes were entirely processed for microscopy and one single section was evaluated. Of all macroscopically positive nodes two or more slices were made. Macroscopical evidence for the presence or absence of tumour necrosis were recorded.

9 Furthermore, the number of nodes enclosed and the number, localisation and lymph node level (according to the Memorial Sloan Kettering Cancer Center Classification) of tumour containing nodes were recorded.

### 3 1.3 Tuniour Response (Part B)

The efficacy parameter for the radioimmunotherapy treatment was tumour response. Tumour response was assessed with tumour...were examined at baseline by an otolaryngologist/head and neck surgeon. This clinical investigator assessed the number, size, location and mobility of all palpable lymph nodes in the head and neck area. The character of the lymph nodes was described as: not suspected, suspected or tumour infiltrated. The status of the neck lymph nodes was classified according to the Tumour Node Metastasis system for staging tumours (TNA4) of the Union Internationale Contre le Cancer (UICC) at diagnosis.

#### Radiological examination

Depending on ...the chest muscles. The appropriate images to demonstrate the neck anatomy and to assess the extent of the primary lesion and the presence of lymph node spread was obtained. They had to be obtained from the skull base to the upper mediastinum.

#### Distant metastases

1.5 For all patients participating in...

15/3,K/14 (Item 5 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00933152 \*\*Image available\*\*

EXTENDED WEB ENABLED MULTI-FEATURED BUSINESS TO BUSINESS COMPUTER SYSTEM  
FOR RENTAL VEHICLE SERVICES

SYSTEME INFORMATIQUE ETENDU ENTRE ENTREPRISES, A FONCTIONS MULTIPLES,  
FONCTIONNANT SUR LE WEB, POUR DES SERVICES DE LOCATION DE VEHICULES

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Detailed Description

Detailed Description

... provide a much more robust interaction capability through the creation of menu designs that allow for access to the most commonly needed features from any point in the menu architecture. This is to be contrasted with the prior system which consisted of a main frame character based interface while the first...the first parent's invention creates almost an illusion that the services purchaser, and the great number of users at various levels of the multi-tier purchaser users, are actually part of the services provider organization in that immediate online access is provided to significant data which enable the user to...

15/3,K/15 (Item 6 from file: 349)  
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00909145 \*\*Image available\*\*

PLANAR LASER ILLUMINATION AND IMAGING (PLIIM) SYSTEMS WITH INTEGRATED  
DESPECKLING MECHANISMS PROVIDED THEREIN  
SYSTEMES PLIIM D'ILLUMINATION ET D'IMAGERIE AU LASER PLANAIRE A MECANISME  
DE DECHATOIEMENT INTEGRE

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TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

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Detailed Description

Claims

Claim

... the rotating refractive disc sections 371 and its neighboring  
cylindrical lenslet 371 are optically combined by the cylindrical lens  
array and projected onto the same points on the surface of the  
object being illuminated, thereby contributing to the resultant  
time-varying (uncorrelated) electric field intensity produced at each  
detector element in...

15/3,K/16 (Item 7 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00835793 \*\*Image available\*\*

SYSTEM AND METHOD FOR AUTOMATING BUSINESS PROCESSES AND PERFORMING DATA  
INTERCHANGE OPERATIONS IN A DISTRIBUTED COMPUTING ENVIRONMENT

SYSTEME ET PROCEDE D'AUTOMATISATION DE PROCESSUS D'ENTREPRISES ET DE  
REALISATION D'OPERATIONS D'ECHANGE DE DONNEES DANS UN ENVIRONNEMENT  
INFORMATIQUE DISTRIBUE

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LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ  
TM TR TT TZ UA UG UZ VN YU ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

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Detailed Description

Claims

Claim

... referred to as business workflows or just workflows. In the past, before computers were widely interconnected through networks, the workflows were performed as a manual process. In this manual process, each participant in the workflow reviewed and completed a portion of a form and then manually routed the form to the next participant. As one can imagine, this manual process had several disadvantages. One disadvantage was the physical delay in routing the form. Another disadvantage was the time-consuming method for checking the status of...

...growth of networked computers and e-mail, the automation of business workflows became more possible. Electronic forms replaced paper forms. Databases storing large amounts of information replaced file cabinets. E-mail replaced manual routing. However, the first attempts at providing an automated WO 01/69431 PCT/US01/08611 optical drives. Therefore...

...create a target object, and saving the target object at a target object location. The present invention further provides a graphical system for creating, editing, scheduling, and executing such data interchange operations in a distributed computing environment.  
Brief Description of the Drawings  
The foregoing aspects and many of the attendant advantages of this invention will...

...operation of the present invention;  
FIGURE 2 is a block diagram illustrating the interaction of tasks in an illustrative requisition workflow;  
FIGURE 3 is a process flow diagram illustrating the interaction of the various components of the present invention;



FIGURE 4 is an illustrative screen display of one embodiment of the...

...list window illustrating the creation of an action list for the manager escalation task;

FIGURE 10 is a flow diagram illustrating an overview of the process performed by the workflow engine for processing incoming messages;

FIGURE 11 is a flow diagram illustrating a process of executing a task

suitable for use in the process shown in FIGURE 10;

FIGURE 12 is a flow diagram illustrating a process of executing a route

suitable for use in the process shown in FIGURE 11;

FIGURE 13 is a flow diagram illustrating a process of executing an object

suitable for use in the process shown in FIGURE 11;

FIGURE 14 is a flow diagram illustrating a process of executing database

calls suitable for use in the process shown in FIGURE 11;

FIGURE 15 is a flow diagram illustrating a process of executing expressions

suitable for use in the process shown in FIGURE 11;

FIGURE 16 is a flow diagram illustrating a process of executing external

logic suitable for use in the process shown in FIGURE 11;

FIGURE 17 is a flow diagram illustrating a process of executing internal

drivers suitable for use in the process shown in FIGURE 11;

FIGURE 18 is a flow diagram illustrating a process performed by the WO 01/69431 PCT/US01/08611

FIGURE 27 is a block diagram of an illustrative network infrastructure providing a suitable environment for...

...diagram illustrating a hardware architecture for a client

computer utilized in an embodiment of the present invention;

FIGURE 30 is a flow diagram illustrating a process for defining a data

interchange operation;

FIGURE 31 is a flow diagram illustrating a process for defining and editing

accounts in an automated business processes service; '

FIGURE 32 is an illustrative screen display showing a window for defining accounts in an automated business process service;

FIGURE 33 is a flow diagram illustrating a process for defining and editing

projects in an automated business processes service;

FIGURE 34 is a flow diagram illustrating a process for defining and

editing data interchange operations in an automated business processes service; FIGURE 35 is an illustrative screen display showing a window for defining

and editing projects;

FIGURE 36 is an illustrative screen display showing a window for defining and editing a data interchange operation;

FIGURE 37 is a flow diagram illustrating a process for defining and editing

source objects;

FIGURE 38 is a flow diagram illustrating a process for defining and editing target objects;

FIGURE 39 is an illustrative screen display showing a window for defining and editing source objects;

FIGURE 40 is an illustrative screen display showing a window for defining and editing target objects;

FIGURE 41 is a flow diagram illustrating a process for defining and editing schedules for performing data interchange operations;

FIGURE 42 is an illustrative screen display showing a window for defining and editing schedules for performing data interchange operations;

FIGURE 43 is a flow diagram illustrating a process for defining aspects of a data interchange operation;

FIGURE 44 is a flow diagram illustrating a process for defining and editing documents utilized by a data interchange operation;

FIGURE 45 is an illustrative screen display showing a window for defining and editing documents utilized by a data interchange operation;

FIGURE 46 is a flow diagram illustrating a process for defining and editing transformations utilized by a data interchange operation;

FIGURE 47 is a flow diagram illustrating a process for defining and editing target messages utilized by a data interchange operation;

FIGURES 48A-48E and 49 are illustrative screen displays showing windows for defining and editing transformations utilized by a data interchange operation; FIGURE 50 is an illustrative screen display showing a window for defining and editing target messages utilized by a data interchange operation;

FIGURE 51 is a flow diagram illustrating a process for defining and editing process messages utilized by a data interchange operation;

FIGURE 52 is a flow diagram illustrating a process for performing administrative functions in an automated business processes service system; FIGURE 53 is an illustrative screen display showing a window for defining and editing process messages utilized by a data interchange operation;

FIGURE 54 is an illustrative screen display showing a window for viewing a system log in an automated business processes service system;

FIGURE 55 is an illustrative screen display showing a window for viewing a queue of current data interchange operations in an automated business processes service system;

FIGURE 56 is an illustrative screen display showing a window for viewing a history of file transfers performed by data interchange operations in an automated business processes service system;

FIGURE 57 is a flow diagram illustrating a process utilized by an operation resolver for executing data interchange operations;

FIGURE 57A is a flow diagram illustrating a routine for performing a transformation/mapping operation.

FIGURE 58 is a flow diagram illustrating a process for scheduling the execution of data interchange operations;

FIGURE 59 is a flow diagram illustrating a process for administrating the operation of a workflow engine in an automated business processes service system; FIGURE 60 is an illustrative screen display showing a window...

...a window for modifying permissions of users and groups in an automated business processes service system; FIGURE 66 is a flow diagram illustrating an illustrative process for executing a data interchange operation on a workflow engine;

FIGURE 67 is an illustrative screen display showing a window for adding a data interchange operation to a workflow process;

FIGURE 68 is an illustrative screen display showing a window for selecting process versioning options; and

FIGURE 69 is an illustrative screen display showing a window for assigning WO 01/69431 PCT/USOI/08611 coupled to an organization...

...computer of the type that includes an amount of volatile memory, and non-volatile memory. The non-volatile memory includes a hard disk or other data storage device. Computer-readable medium residing in the non-volatile memory is accessible by the computer. The computer-readable medium includes computer-executable components. In...

...20 and server computer 22 includes a processor, a keyboard, a directional input device such as a mouse, and a monitor, such as a cathode ray tube (CRT) or a liquid crystal display (LCD). Programs executed by the client computer 20 and server computer 22 preferably use a graphical user interface...

...various organizations 12 is the Internet. The Internet is a commonly used wide area network that comprises many networks linked together to form a global data link. The Internet, wide and local area networks, and TCP/IP communication mediums are well understood by those of ordinary skill in the art and...more WO 01/69431 PCT/USOI/08611 message. The first zero informs the workflow engine 52 that a new instance must be created for the process. The one informs the workflow engine 52 that the incoming message 74 is associated with the first task of the "Purchasing Process" workflow. The second zero informs the workflow engine that the task instance is the first instance of the task for this workflow. This protocol format...

...with each message in both the incoming queue and the outgoing queue. After receiving the incoming message 74, the workflow engine 52 creates a new process instance for the purchase requisition workflow. As described above, the workflow engine 52 will assign a process instance ID (PIID) for the process ID (PID) that corresponds to the purchase requisition workflow. This allows the workflow engine 52 to simultaneously process two or more purchase requisition workflows. The set of information for the purchase request task I 1 0

indicates that in the process database 56 the purchase request task 1 10 has post-role actions assigned for the workflow engine 52 to perform. For this example, the post-role action is testing whether the purchase amount is under a certain dollar amount. In the current example, the workflow engine 52 accesses the data element sent in the incoming message or a location for storing the dollar amount in the existing computer infrastructure to calculate whether the cost is equal or greater than \$5,000. If so, the WO 01/69431 PCT/USOI/08611 attributes to retrieve the data elements for the purchase requester task 1 1 0. These data elements may be available in RAM or obtained from non-volatile memory.

Using the requester name, the workflow engine 52 may query an external database 70 specified during creation of the manager approval task 114 using the modeling tool 60. This process will be described in detail in FIGURES 10 For this example, the "human resource database" is accessed and queried using the Structured Query Language (SQL) to retrieve the immediate manager and the corresponding e-mail address for the immediate manager. The next pre-role action defined in the process database 56 for the manager approval task 114 is to send an email message to the immediate manager with a uniform resource locator (URL) pointing...

...mail message is then recorded along with a timestamp in the message database 62. The workflow engine monitors the out message queue and replaces the data elements with desired values and then sends the out message to a next workflow participant. This processing is described in detail in FIGURE 18. It should be appreciated by those skilled in the art that the e-mail message may comprise other types of information than a URL. For instance, as described below, an MHTML encoded page may be transmitted containing a script. A reply to the message may then...

...workflow engine 52 continuously processes any other messages in the incoming message queue and outgoing message queue. Once the immediate manager has input the necessary information into the approve form and selected an Approve or Reject button on the form, the completed form is sent in the same manner as the...window 250 is the default window that appears when a particular task is selected. If the workflow administrator 66 has not previously entered any task information in the general task window 250 associated with the selected task, the text boxes and display windows of the general task window 250 do not contain any information. However, as one skilled in the art will recognize, default data may be specified and automatically entered into any edit box or display window. If the general task window 250 is not the window displayed, the...

...and click operation or other selecting operation. Upon selection of the general tab, the present invention executes instructions that provide a display for entering task information. The general task window is used to define the pre-role actions for tasks. The general task window 250 includes a task name edit box...

...edit box 264 is an English translation of the business logic for the named task. In addition, the general task window 250 includes a task data edit box 266 and a data elements available window 268. The text entered in the task data edit box 266 may be written using a task scripting language. In one embodiment, the scripting language

requires the WO 01/69431 PCT/USOI/08611 administrator 66, in the data elements available window 268 to aid in the specification of the location for the data elements 272 of the named task. For example, the workflow administrator 66 may position the cursor over the PR:ItemCost(integer) item in the data elements available window 268 and drag and drop the PR:ItemCost(integer) item to the task data edit box 266 after the "ItemCost=" entry. The modeling tool 60 then executes instructions that formats the location according to proper scripting rules. The workflow administrator 66 may also just type the necessary information after the "ItemCost=" entry rather than using the drag-and-drop operation. Adding locations, such as shown generally at 278, for the task data element 272 may be entered by inserting a separator 276, "I", after any previously entered location, such as shown generally at 274, and adding text...

...276 signals the WO 01/69431 PCT/USOI/08611 "TASK:MAEscl.newEmail" indicates to the workflow engine 52 that the task named MAEscl has a data element newEmail that has a location defined for it. The to FIGURE 5B and 7.  
The task edit box 266 may also include a procedure...

...as  
"ReportDataElements(" that signals the workflow engine 52 to execute additional instructions for the named task. In the example, "ReportDataElements(" records the value of the data elements for the named task in a log file to aid in debugging. The data elements available window 268 may also include global variables, shown generally at 293. In one embodiment, global variables have a unique identifier, such as a "I" as the first character. These global variables are defined by the workflow administrator 66 similar to the definitions for task data elements 272. After the necessary pre-role actions of the named task are completed, the WO 01/69431 PCT/USOI/08611 The fixed role does not change throughout any workflow processing. For a variable role, the workflow administrator 66 enters the data element 272 associated with the role 280 in the role string edit box 302 of FIGURE 6. The workflow data element may then be changed by different tasks depending on the assigned role in a particular situation (see FIGURE 5A). The data elements 272 must have been previously defined during the creation of data elements described above in reference to ...250. The other role options are provided by selecting one of the buttons 306, 308, 310 that active a dialog box to enter the requested information. For an absolute role, a functional name for the role is provided, such as "head of marketing" that is saved in the process database. During runtime, the workflow engine 52 retrieves the current head of marketing from a specified database field. For a relative role, a relative association is specified in the dialog box, such as "requester's manager". The button 324 or the do not use data element button 326. If the use data element button 324 is selected, the workflow administrator 66 enters the previously defined data element 272 that specifies the number of minutes before initiation of the named task. If the do not use button 326 is selected, the number of minutes is determined by a fixed value assigned during the definitions for the general task window 250 of FIGURE 5A (i.e., "Y). The data element 272 for the number of minutes is used by the workflow engine 52 during processing to determine whether a linked task has completed in...

...sending a notification message to the workflow participant 68 assigned to the linked task. The current task window 330 provides a graphical display of the data elements 292 previously defined for the named task. After the escalation task has been defined, the workflow administrator 66 may select the document tab 258...

...edit box 338 specifies a physical location for the document. The physical location is necessary so that the document may be parsed to identify any data elements that are then displayed in retrieved data element window 350. The present invention uses a built-in object browser to detect and use registered COM objects and to determine the workflow data elements in the specified document. FIGURE 20 illustrates an illustrative display of the built-in object browser 352. This allows the present invention to map to the existing computing infrastructure without replicating the data. The built-in object browser in combination with the Open Database Connectivity (ODBC) compatible applications allows all the properties, methods and events of external objects to be represented graphically in the retrieved data elements window 350. The workflow administrator 66 also enters a standard URL, in the URL edit box 340. The URL specified in the URL edit...

...document window 348 performs a browser type feature, such as displaying contents of the document specified in the URL edit box 340, to aid the process. The workflow administrator 66 may then select the action tab 260 that causes the present invention to execute instructions for displaying an action window 360...

...screen display for an action window is shown in FIGURE 9A. The action window 360 includes an action list window 362 and an action list data elements available window 364. The action list data elements available window 364 provides a hierarchical tree structure of the available data elements of the named task (shown generally at 290). The data element "\$count" is shown as a branch from a route process entitled "Process-Data". This indicates that \$count is a global data element that is available to all the tasks of the named process. The present embodiment includes a "ResolvedRole" data element for each task. The "ResolvedRole" data element contains the e-mail address of the responsible WO 01/69431 PCT/USOI/08611 embodiment, the process database 56 is Open Data Base Connectivity (ODBC) compliant. The information in the process database 56 includes task names, activities for each task, data elements, routing information and rules. The process ID and consecutive task ID number is stored in the process database 56 for later retrieval by the workflow engine 52 when determining the next action or task to be performed in the workflow process. According to an embodiment of the present invention, the modeler may include a menu item or button for displaying versioning options. An illustrative versioning window 681 is shown in FIGURE 68. Using the versioning window 681, the workflow administrator 66 may specify how new versions of a workflow process should be handled by the modeler. In

particular, the workflow administrator 66 may select one of the process versioning options 682 for adding the current version of the process as a new version. The workflow administrator 66 may also select one of the process versioning options 682 for replacing the last version of the workflow process with the version of the process currently being edited by the workflow administrator

66 Additionally, the workflow administrator 66 may select one of the process versioning options 682 for deleting all of the previous versions of the process and saving the current version of the process as a new version. Utilizing the versioning window 681, the workflow administrator 66 may also select the version effective date 683. In particular, the workflow administrator 66 may select an option for making the current version of the process effective immediately. Alternatively, the workflow administrator 66 may select a future date on which the version of the process should become active. In this manner, the WO 01/69431 PCT/USOI/08611 FIGURES 10-18 are flowcharts illustrating the processing performed by the WO...

...proceeds to block 440.

At block 440, the workflow engine 52 determines whether a role or a document is defined for the current task. The process for defining a role or document for an activity is described in detail above with reference to FIGURES 5A, 6 and 8. If a role...

...document is defined, the logic proceeds from decision block 440 to block 442 where the workflow engine 52 defines a role by parsing the "role" data element as previously described in FIGURE 5A and 6. The logic then proceeds to resolve the role at block 444. As described earlier, the role...

...to block 446 where a document template is created. The document template, such as Manager Approve.asp defined in FIGURE 8, does not have any data elements resolved at this time. The logic then proceeds to decision block 448 where the workflow engine 52 determines whether there is an escalation task...

...block 448 to block 452. At block 452, the workflow engine places an outgoing message 76 in the outgoing message queue. FIGURE 12 is a process for executing a route suitable for use in block 426 of FIGURE 11. In general, the process for executing a route occurs when the workflow engine 52 encounters a ROUTE keyword as shown in the action list window 362 of the action...

...route and records the route in the instance database 58 so that the workflow engine 52 maintains a status for the workflow. The execute route process starts at 460 and proceeds to decision block 462 where the workflow engine 52 determines whether a route needs to be initialized. The route must...

...route that depend on a different routing rules do not initialize the route again. The instance database 58 may include several tables for storing routing information. It will be apparent to one skilled in the art that the architecture for these tables may be done in several different ways. As will rule. The routing rule is obtained from the

stored set of information in the process database 56.  
For example, as shown in FIGURE 4, the route links 100, 106 for the Approve Request task 1 12 are from the purchase...

- ...1 12, the WO 01/69431 PCT/USOI/08611 database 58 contains the prior actions completed by the workflow engine 52 for various tasks and data elements 272 for various tasks. If the current task must wait until a different task has completed, the workflow engine 52 looks through the instance...
- ...determined not to be met, the logic proceeds to decision block 474 where the workflow engine 52 determines whether there are any more rules to process before starting the next task. If there are, the logic cycles back to block 468 to get the next routing rule and proceeds as described...
- ...a flow diagram illustrating a process for executing an object suitable for use in block 428 of FIGURE 1 1. The executing object task process starts at 480 and proceeds to block 482 where the workflow engine 52 defines input data elements 272. During block 482, the workflow engine 52 formulates the input parameters for an object driver from the data elements and values that were sent in the incoming message or retrieved in some manner. The logic then proceeds to decision block 484 where the...
- ...of the objects shown in blocks 486-494 is also well-known in the art. In general, each object driver executes code that generates output data elements that are returned to the workflow engine 52 at block 496.  
According to an embodiment of the present invention, the workflow engine may also cause a data interchange operation to be executed. At block 495, the data interchange operation is identified and executed. An illustrative routine for executing the data interchange operation is shown in FIGURE 66. Referring now to FIGURE 66, the routine 660 for executing a data interchange operation will be described. Routine 660 begins at block 664, where the operation identification number associated with the data interchange operation is transmitted to an operation resolver. As will be described in more detail below with respect to FIGURE 57, the operation resolver performs the actual data interchange operation. From block 664, the routine 660 continues to block 666, where the workflow engine saves a message in the instance database indicating that...
- ...the routine 660 continues to block 668, where it returns to block 498, shown in FIGURE 13. Referring again to FIGURE 13, after the output data elements have been obtained, the logic ends at 498 and returns to decision block 438 in FIGURE 1 1. FIGURE 14 is a flow diagram illustrating a process for executing a database call suitable for use in block 430 of FIGURE 1 1. The execute database call process 500 proceeds to block 502 where Standard Query Language (SQL) statements are created according to the set of information in the process database for the current task. The logic then proceeds to block 504 where the workflow engine 52 creates a connection string and to block 506 where the SQL is executed. Blocks 502, 504, and 506 are well-known in the art. The database call then returns the output data elements to the workflow engine 52 at block 508 and the logic



ends at 5 1 0 and returns to decision block 43 8 in...

- ...database connection caching occurs once the database call to the external database occurs. Typically, this occurs during the execution of activities. FIGURE 15 illustrates a process for executing an expression suitable for use in block 432 of FIGURE 1 1. The execute expression starts at 520 and proceeds to block 522 where the workflow engine 52 defines the data elements 272. The logic then proceeds to block 524 where the workflow engine 52 assigns each data element a source. For example, the workflow engine may access the instance database 58 to locate a value for a data element and add one of the defined data elements of block 522 to the retrieved data element to generate the output data element of block 526. After this is completed, the execute expression process is complete at 528 and the logic returns to decision block 438 in FIGURE 1 1. FIGURE 16 is a flow diagram illustrating a process for executing internal logic suitable for use in block 434 in FIGURE 1 1. In general, the process for executing internal logic evaluates expressions to test whether an expression is true or false. For example, in FIGURE 9B, the internal logic executed for...to the end at 576 and then returns to decision block 43 8 in FIGURE 1 1. FIGURE 18 is a flow diagram illustrating a process performed by the WO 01/69431 PCT/USOI/08611 encrypt incoming and outgoing process requests. Example security protocols include x.509, New Technology Lan Manager (NTL) and Kerberos. It will be apparent to those skilled in the art the...
- ...in further detail. After invoking the message protocol, the logic proceeds to block 592 where the workflow engine 52 generates the document by replacing the data elements 272 of the document template that was created in block 446 in FIGURE 1 1 with derived (resolved) values as defined in the process database for the document. The logic then proceeds to block 594 where the workflow engine 52 sets the driver settings for a target destination and...
- ...on the network illustrated in FIGURE 1. The logic then proceeds to block 596 where the workflow engine 52 activates the driver and sends the information to the target destination. The logic then proceeds to decision block 598 where the workflow engine 52 determines whether there is an error. If there...
- ...one, two or three servers and the workflow engine resides on one or more servers. FIGURE 21C illustrates a multi-message queue, multi-engine, single process database instance database topology in which there is one instance of the process database and instance database (may reside on one or two servers) and the workflow engine and multimessage queues reside on one or more servers. FIGURE 2 1 D illustrates a multimessage queue, multi-engine, multi-instance database, single process database topology in which there is one instance of the process database. FIGURE 21E illustrates a multi-component topology in which all components may reside on one or more servers. Other topologies not illustrated in FIGURES 21A-21E are envisioned such as a split engine - database topology in which the process database and instance database reside on one or more servers other than the server with the workflow engine. The message queue, process database and instance database may reside on one or more separate servers running on the same or different type of database server. Using these topologies...

...message queue when the message router completed an activity. The message router component reads incoming messages, initiates the activities based on the stored set of information that defines the sequence of tasks for completing the work flow, routes the activities to a software application running on one of the network devices...to distribute message processing when the present invention is in multiengine topologies, such as FIGURE 21B-21E. The present invention also provides caching of the process database 56. In one embodiment, the complete process database 56 is cached in memory before the WO 01/69431 PCT/USOI/08611 cached active data later for evaluating rules, such as AND/OR rules, when determining whether a task may be started. As explained above, the process database 56 includes several tables that store the set of information used in processing the workflows. Because the size of the process database (the tables) is known at the time of caching, static hashing techniques are used. The tables are hashed and once the task is found, the workflow engine uses the pointers to find the data elements corresponding to the found task. In general, hashing is well understood by those of ordinary skill in the art and need not be discussed...

...a hashing technique called Linear Probing is used. Linear Probing allows a hash table to be approximately 20% larger than a task table in the process database. This balances memory usage and performance for the system.

The linear probing used in the present invention is provided below:

CN Average number of probes for...

...follows that:

CN; z: @ I 1 + (3)

2 I-a)

When the table is 80% full, the Linear Probe algorithm provides fetching of the required data in less than three table lookups in most cases.

The incoming messages from the incoming message queue may also be hashed. However, because the message...

...database may also be hashed. Again, the instance database is dynamic because the size of the hash tables are not known in advance because new data is added and deleted from the instance database as a process proceeds from one task to the next task. Therefore, dynamic hashing techniques are used in the present invention for caching the instance database. These techniques...

...a database connection manager 550, an archive manager 552. The database connection manager 552 is used by the workflow administrator 66 to identify the ODBC data source names for entry in the instance database 58 and the message database 54. The workflow administrator 66 uses the administration tools 66 to supply information, such as SMTP server and other directory information, that is recorded in the process database 56 along with information created through the modeling tool 60.

The archive manager 550 performs garbage collection on the instance database 58 and the message database 54 during run...

...mentioned earlier, when a business workflow has completed all the business rules associated with it, the workflow instance that was created by the Automated Business Process Service According to an embodiment of the present invention, an automated business process service is provided. As shown in FIGURE 22A, a commerceroute server 700 is provided that is connected to the Internet 704 or other distributed computing...

...702N may access commerceroute server 700 and automate business processes between each other. As described in additional detail below, commerceroute server 700 may maintain subscription information for each subscribers 702A-702N, and bill subscribers ...and routine 708 branches to the appropriate block for handling the selected menu item. If the subscriber has selected a menu item for creating a data interchange operation, routine 708 branches to block 704. As will be described in more detail below, a data interchange operation is a move and/or transform operation that can retrieve a source object at a source object location, perform a transformation on the source object to create a target object, and save the target object at a target object location. An illustrative routine for performing a data interchange operation is, described below with respect to FIGURE 30. If, at block 722, it is determined that the subscriber has selected a menu item for billing, routine 708 branches to block 728. An illustrative routine for billing a subscriber and providing the subscriber with billing information is described below with reference to FIGURES 25A and 25B. If, at block 722, it is determined that the subscriber has selected a menu item for modeling a business process, routine 708 branches to block 734. At block 734, the subscriber is permitted to use the modeler application program to model business processes, as described...

...now to FIGURE 24, an'illustrative routine 740 for registering a new subscriber will be described. Routine 740 begins at block 746, where new subscriber information is received. New subscriber information may include the subscriber's company name, contact name, business address, billing address, telephone number, email address, and other information necessary to bill the subscriber for use of the automated business process service. From block 746, routine 740 continues to block 748, where a new subscriber identification ("ID") number is created for the subscriber. As will be...

...number is utilized by the commerceroute server 700 to keep a record of all operations performed on behalf of the subscriber and to create accounting information necessary to bill the subscriber for executing WO 01/69431 PCT/US01/08611 For instance, a subscriber may be billed on a per-operation basis...

...it returns to block 720, shown in FIGURE 23. Referring now to FIGURE 2513, an illustrative software architecture for providing billing in an automated business process service will be described. As discussed above, a system log 782 is maintained which contains a complete record of operations performed on behalf of each...

...an accumulator 786 may be designed to execute those operations as requested to provide access to the subscriber's bill in a real time fashion.

#### Data Interchange Operations

As described above with reference to FIGURE 23, a subscriber may select a menu item for creating or editing a data interchange operation.

Generally described, a data interchange operation is an automated process for retrieving a source object at a source object location using a protocol, performing a transformation/mapping operation on the source object, and saving the resulting target object in a target object location. As shown in FIGURE 26, according to an embodiment of the invention, the data interchange operation is performed by an application program called an operation resolver 792. In general, the operation resolver 792 utilizes a data interchange operation definition provided by a subscriber to locate a source object 794 at a source object location 796. The operation resolver 792 may retrieve...

...the operation resolver 792 is described in more detail below with respect to FIGURE 57.

Referring now to FIGURE 27, an illustrative system for performing data

interchange operations will be described. In order to enable the use of data interchange operations within an automated business process system, a Web data interchange ("VVDI") server 814 is provided. As will be described in more detail below, the VYTDI server 814 comprises a general purpose computer connected to...

...pages to a user of a client computer 816. Utilizing a client computer 816, a user may access the WDI server 814, and define, edit, schedule, and save data interchange operations.

Once a user has created a data interchange operation, a data interchange operation definition may be saved in the WDI database 818. The WDI database may

be accessed by the VVDI server 814 to permit editing of the data interchange

operation definition at a future time, may be utilized by the scheduler 820 to schedule data interchange operations, and may be utilized by the operation resolver 792 to execute data interchange operations.

Through the WDI server 814, the user may access the scheduler 820 for scheduling data interchange operations. As will be described

in more detail below with reference to FIGURE 41, once a schedule has been defined, the scheduler 820 can utilize the schedule to

trigger the execution of data interchange operations. Generally speaking, the scheduler determines whether a particular data

interchange operation should be executed and, if so, retrieves the data interchange operation definition from the WDI database 818.

The scheduler then transmits a message to the message database 54, which as described above is monitored by the workflow engine 52. The workflow engine 52 then retrieves the message and determines that the message contains a request for execution of a data interchange operation.

In response, the workflow engine 52 transmits a request to the operation resolver 792 to perform the data interchange operation. The

operation resolver 792 retrieves the data interchange operation definition from the WDI database 818, and performs the data

interchange operation. As generally described above, the operation resolver utilizes a set of protocol objects 824 to retrieve a source object 794 at a source location. Using the data interchange

operation definition, the operation resolver then performs a specified transformation/mapping operation on the source object to create a target object 812. Again, using...

...object 812 at a target object location. The operation resolver 792 then transmits a message to the workflow engine 52 indicating whether or not the data interchange operation was successfully completed. According to an embodiment of the invention, a task within a workflow process defined in the modeler may be defined as a data interchange operation. In this manner, the workflow engine may trigger the execution of data interchange operations on the operation resolver 792 as part of its normal processing of workflow processes as described above. Furthermore, a user of the client computer 816 utilizing VV-DI server 814 may also cause a data interchange operation to be executed utilizing a command available at the NVDI server 814. Additionally, a user of the client computer 816 may utilize an...system ("BIOS") 830 is also provided for controlling the low-level operation of WDI server 814.

The mass memory also stores the program code and data for providing a

WWW site for defining and utilizing data interchange operations.

More specifically, the RAM 832 stores a WWW server application program 836 as known to those skilled in the art. The WWW server...

...client computer 816 may also be equipped with a network interface unit 894 or modem capable of connecting to the Internet through a point to point protocol ("PPP") connection or a SLIP connection as known to those skilled in the art. The client computer 816 also includes a ROM BIOS 866, central processing unit...

...server 814 and client computer 816 is described in more detail below. Referring now to FIGURE 30, an illustrative routine 900 for creating, editing and scheduling a data interchange operation will be described. Routine 900 begins at block 902 and responds to the selection of the data interchange menu item shown in FIGURE 23. In response to the selection of the data interchange menu item, a data interchange menu is displayed to the user. The data interchange menu includes menu selections for creating and modifying accounts, projects, sources, operations, targets, schedules, definitions, and for monitoring the status of the workflow engine. At block 904, a selection of one of the foregoing menu items is received from 906, it is determined that the user has selected a menu item for creating and editing data interchange operations, routine 900 branches from block 906 to block 914. An illustrative routine for creating and editing data interchange operations is described below with reference to FIGURE 34. If, at block 906, it is determined that the user has selected a menu item...

...with reference to FIGURE 38. If, at block 906, it is determined that the user has selected a menu item for creating and editing schedules, routine 900 branches from block 906 to block 918. An illustrative routine for creating and editing schedules is described below with reference to FIGURE 41. If, at block 906, it is determined that the user has selected a menu item for creating...

...to FIGURE 3 1, an illustrative routine 95 0 for creating and editing accounts will be described. Routine 950 begins at block 954, where a process tree is displayed. The process tree illustrates a hierarchy of accounts, projects, and operations, in a tree format. Accounts are the top-level folders in the account management hierarchy. Accounts hold projects which, in turn, hold collections of related operations. The process tree contains all accounts, projects, and data interchange operations accessible to the current user. If no accounts, projects or data interchange operations have been created by the user, the process tree will be empty. Likewise, if the user has not been granted access rights to view, edit, or delete accounts, the process tree will be empty. Routine 950 continues from block 954 to block 956, where user input is received selecting a portion of the process tree. At block 958, a determination is made as to whether the user has selected an existing account in the process tree. If the user has selected an existing account in the process tree, routine 950 branches to block 960. At block 960, the account details associated with the selected account are displayed and the user is permitted to...

...user chooses to use the new operation "wizard", new account details are received from the user at block 968. New account details may include such information as account name, account description, account number, a street address to be associated with the account, and a contact name. From block 968, routine 950 continues to block 970, where the new account details are saved in the WDI database. The process tree is also updated to reflect the new account. From block 970, routine 950 continues to step to block 972, where it returns. Referring now to...

...to the client computer 816, and displayed by the WWW browser 870. As described above with reference to FIGURE 31, the screen display shows a process tree 980 which includes a listing of the accounts, projects and data interchange operations available to the currently logged-in user. The accounts, projects and data interchange operations are shown in the process tree 980 with the accounts at the highest level, the projects nested one level, and the data interchange operations nested one level below. When the user selects an account such as "CR demo," the account details regarding the selected account are shown...

...step-by-step procedure for creating a new account. Once the user has created a new account, the new account will be reflected in the process tree 980. Referring now to FIGURES 33 and 35, an illustrative routine 1000 for creating an editing projects will be described. Projects are groups of related data interchange operations. Routine I 000 begins at block 1004, where the process tree 980 illustrating accounts, projects and data interchange operations is displayed. At block 1006, user input is received. From block 1006, routine 1000 continues to block 1008, where a determination is made...

...user may choose to use the project wizard to create a newproject. Fromblock1016,routinel000continuestoblock1018,wherethenew project details are saved in the WDI database 818. The process tree 980 is also updated to reflect the new project. From block 1018, routine 1000 continues to block 1020, where it returns.

Referring now to FIGURES 34 and 36, an illustrative routine 1050 for creating and editing data interchange operations will be described. As described generally above, a data interchange operation is an operation by which a source object located at a source location may be transformed and saved as a target object at a target location. By utilizing the illustrative routine 1050, a user may provide all of the information necessary to create a data interchange operation definition. Routine 1050 begins at block 1054, where the process tree 980 is displayed. From block 1054, routine 1050 continues to block 1056 where user input is received. At block 1058, a determination is made as to whether user input was received selecting an existing data interchange operation shown in the process tree 980. If an existing data interchange operation was selected by the user, routine 1050 branches to block 1060 where the operation details and definitions for the selected data interchange operation are displayed.

As shown in FIGURE 36, operation details include an operation name 1088, an operation description 1090, and an operation type 1092. Operation definitions may include a source object 1096, a target object 1106, and a transformation 1108 to be performed on the source object. Additionally, the data interchange operation definitions may include a schedule 1098 describing when the data interchange operation should be performed. Moreover, a success message 1,100 and a failure message I 1 1 0 may be defined for transmitting a message in the event of success or failure of the data interchange operation, respectively. Likewise, a success operation 1102 and a failure operation 11 12 may be specified for performing another data interchange operation in the event of success or failure of the selected data interchange operation, respectively. Similarly, a success workflow 1104 and a failure workflow 1114 may be defined for performing an entire workflow in the event of success or failure of the selected data interchange operation, respectively. In this manner, a data interchange operation may be utilized to trigger another data interchange operation or an entire workflow in the event of its success or failure. It should be appreciated that the user may only select from source objects, target objects, transformations, schedules, and success/failure operations and WO 01/69431 PCT/USOI/08611

Referring again to FIGURE 34, at block 1060 the user may be permitted to edit the data interchange operation definitions. At block 1062, the updated data

interchange operation definition is saved in the WDI database 818. From block 1062, the routine 1050 continues to block 1076 where it ends. If, at block 1058, it was determined that the user did not select an existing data interchange operation, routine 1050 continues to block 1064, where a determination is made as to whether the user has selected an option for creating a new data interchange operation. If such a selection was made by the user, routine 1050 branches to block 1066 where operation details for the data interchange operation are received from the user. As described above, operation details may include an operation name 1088, an operation description 1090, and an operation ...

...the operation definitions are received from the user. At block 1070, the operation details and definitions are saved in the WDI database 818 as a data interchange operation definition. From block 1070, routine 1050 continues to block 1076, where it returns. It should be noted that the

user may utilize a new data interchange operation wizard 1094 to create a new operation in an easy-to-use fashion similar to that described above with respect to the creation of accounts and projects. If, at block 1064, it is determined that the user has not selected an option for creating a new data interchange operation, routine 1050 continues to block 1072. At block 1072, a determination is made as to whether the user has selected a user interface...

...16 for performing the selected operation immediately. If the user has made such a selection, routine 1050 branches to block 1074, where the currently selected data interchange operation is transmitted to the message database for immediate execution. The user may also be provided with feedback as to whether the operation was...Referring now to FIGURES 38 and 40, an illustrative routine 1200 for defining target object locations will be described. A target object defines where transformed data will be sent (e.g., to a different FTP location, in a file share directory, in a database, etc.) According to an embodiment of the...

...location details may include an FTP host 1266, an FTP host path 1268, a file name 1270, a login 1272, and a password 1274. This information specifies an FTP host and path where the target object should be saved. Additionally, the user may indicate whether encryption 806 should be performed on the target object prior to saving at the target object location. Methods for electronically encrypting data in this manner are well known to those skilled in the art. Additionally, ...comprise an SMTP server. By utilizing an SMTP server as a target object location, e-mail messages may be sent as a part of the data interchange operation, as compared to simply saving a file at a target object location. At block 1212, the updated target details are saved in the...

...definition is received from the user. As described above, the contents of the target object definition will depend on the target type, and will include information necessary to connect to the target location and save the target object. At block 1222, the new target object name, target object type, and target...

...1232, routine 1200 continues to block 1234, where it returns. Referring now to FIGURES 41 and 42, an illustrative routine 1300 for creating and editing data interchange operation schedules will be described. According to an embodiment of the present invention, a user may select a menu item  
@@A A,rZ@, @1,A,1@@ T@ +

I 1 '14@" n

modify these items to customize the schedule for their particular needs. For instance, the user may modify the occurrence pattern 1354 to specify that the data interchange operation occur daily, weekly, monthly or every number of days specified by the user. Likewise, the user may modify the occurrence frequency 1356 to specify that the data interchange operation occurs once at a specified time or that it occurs every number of hours, minutes, etc., specified by the user. Furthermore, the user may modify the duration 1358 to specify that the data interchange operation start on a given date and end on a given date, or continue without duration. Once the user has modified these items to



customize the schedule to their preferences, the updated schedule is saved in the WDI database 818 at block 1312. From block 1312, the routine 1300 continues to block 1326, wherein it returns. If, at block 1308, it is determined that the user has not selected an existing schedule, the routine 1300 continues to block 1314. At block 1314, a determination is made as to whether the user has selected an option

for creating a new schedule. If such input is received from the user, routine 1300 branches to block 1316, where the new schedule name 1352 is received from the user. At block 1318, the occurrence pattern 1354 for the new schedule is also received from the user. At block 1320, the occurrence frequency 1356 is received from the user. At block 1322, the duration 1358 is received from the user. At block 1324, the new schedule name, occurrence pattern, occurrence frequency, and duration are saved in the WDI database. At block 1326, routine 1300 returns.

Referring now to FIGURE 43, an illustrative routine 1400 for defining documents, transformations, process messages and target messages in connection with a data interchange operation will be described. Routine 1400 begins at block 1404 where the definitions menu 1474 is displayed in response to the user's selection of the definitions menu item. The definitions menu 1474 includes tabs for defining documents, transformations, process messages, and target messages. At block 1406, user input selecting one of the menu items from the definitions menu 1474 is received. At block 1408...

- ...target messages is described below with reference to FIGURE 47. Likewise, if at block 1408 it is determined that the user has selected the define process messages menu item, routine 1400 branches to block 1416. An illustrative routine for defining process messages is described below with reference to FIGURE 51. If, at block 1408, it is determined that the user has selected a menu item for...The document definition may include a document name 1478 and a document type 1480. Depending on the document type 1480 selected by the user, additional information may be provided as a document type definition 1482. For instance, if the user chose a delimited document type 1480, a delimiter 1484 may be required to indicate the character that separates the fields of the document. Moreover, additional information may need to be provided as part of the document type definition 1482 to further define the document. In this example, a field name, sequence...
- ...the document and their types. By selecting an add records user interface button, additional fields may be added until the document is accurately described. Additional information may be necessary for other document types as is known to those skilled in the art. Once the user has edited the document type definition...
- ...1480 is also received from the user. At block 1470, the document type definition is received from the user. As described above, the type of information required to define the document type definition will be dependent on the document type 1480 specified by the user. At block 1472, the new document...
- ...The routine 1500 provides the user the ability to create and edit

transformations that will be applied to documents located at source object locations during data interchange operations. Routine 1500 begins at block 1504, where the previously defined and available transformations are identified in the transformations list 1530. At block 1506...

...be mapped to each other, and documents can be transformed from one format to another. The user then may customize the transformation of the data contained in the selected source field 1536 to the selected target field 1538 by selecting the formula user interface button 1544. In response to the...user may select a "next" user interface button to continue to the next screen of the "wizard." FIGURES 48C and 48D illustrate performing this mapping process for target objects in a like fashion. Once the user has mapped parent and child fields of the source object and of the target object...as the to field 1584, the subject field 1588, and the message text 1590. It is important to note that the user may specify that data contained in the source object be used to complete the fields of the target message by specifying a variable. For instance, in the to field...

...Routine 1550 then continues to block 1568, where the identity of the SMTP mail server 1582 is received from the user. At block 1570, destination information such as the to field 1584 and the subject field 1588 are received from the user. Additionally, the user may specify carbon copy recipients and...

...messages list 1578. At block 1576, the routine 1550 returns. Referring now to FIGURES 51 and 53, an illustrative routine 1600 for creating and editing process messages will be described. Process messages are messages that may be sent in response to the success or failure of a data interchange operation, such as the success messages and failure messages described above with reference to FIGURE 36. Routine 1600 is executed in response to the selection of the process messages tab from the definitions menu 1474. Routine 1600 begins at block 1604 where the previously created process messages that are available to the user are displayed as a process messages list 1676. Routine 1600 continues from block 1604 to block 1606, where user input is received. At block 1608, a determination is made as to whether the user has selected an existing process message from the process messages list 1676. If the user has made such a selection, routine 1600 branches to block 1610, where the selected process message is displayed and user edits are received. The process message may include a message name 1678, an SMTP mail server 1680 from which the message should be sent, and other information necessary to send the process message. For instance, the message may include a to field 1682, a subject field 1684, and a text message 1686. Additional fields may include carbon...

...failure identifier so that the message may be identified as a success message or a failure message. Once the user has completed editing the selected process message, the routine 1600 continues to step 1612, where the edits are saved in the VVDI database 818. Routine 1600 then continues to step 1626, where it returns. If, at step 1608, it is determined that the user has not selected an existing process message from the process messages list 1676, the routine 1600 continues to block 1614. At block 1614, a determination is made as to whether the user has selected an option for creating a new process message. If the user has selected such an option, the routine 1600

branches to block 1616, where a success or failure identifier is received from the user. As described above, the success or failure identifier may be included in the message name 1678 to identify the process message as a success message or a failure message. Routine 1600 then continues to block 1618, where the message name 1678 and the SMTP...

...1684 are received from the user. Additionally, a "reply to" field may be specified by the user to indicate where a reply message to the process message should be transmitted. Routine 1600 then continues to block 1622 where the message text 1686 is received from the user. At block 1624, the new process message is saved in the WDI database 818 and reflected in the process messages list 1676. Routine 1600 then continues to block 1626, where it returns. Referring now to FIGURES 52, 54, 55, and 56, an illustrative routine 1650 for providing status information will be described. Routine 1650 is executed in response to the selection of the status menu item described above with respect to FIGURE 30. In...to block 1660. At block 1660, the system log 1688 is displayed for the account, project, or operation currently selected by the user in the process tree 980. If an account is selected, the system log 1688 will include all of the projects and operations for the selected account. Similarly, if a project is selected from the process tree 980, the system log 1688 will include all of the operations for the selected project. If, at block 1658, it is determined that the user...

...current operations 1690 is displayed to the user. As described above, the list of current operations 1690 will be determined based upon the selected account, process, or operation selected from the process tree 980. If, at block 1662, it is determined that the user has not selected the pending processes tab from the status menu 1687, routine 1650...

...the operation of the operation resolver 792 (shown in FIGURE 27) will be described. As described above, the operation resolver is responsible for performing the data interchange operations described in interchange operation definitions stored in the WDI database 818. The operation resolver performs the data interchange operations in response to messages received from the workflow engine 52. Accordingly, the routine 1700 begins at 1704, where the operation resolver receives an operation ID number from the workflow engine. The operation ID number comprises a request from the workflow engine 52 that the operation resolver perform the data interchange operation associated with the operation ID number.

Routine 1700 continues from block 1704 to block 1706, where a determination is made as to whether an operation status flag is set. An operation status flag may be associated with an operation ID number to indicate that a particular data interchange operation should not be performed. This fictionality may be useful, for instance, where a subscriber to the automated business process system has not paid a bill. If, at step 1706, it is determined that the operation status flag is set, the routine 1700 branches to...

...workflow engine. If, at block 1706, it is determined that the operation status flag is not set, routine 1700 continues to block 1710 where the data interchange operation definition is retrieved from the WDI database according to the operation ID number passed to the operation

resolver by the workflow engine. As described above with respect to FIGURE 36, the data interchange operation definition contains all of the information necessary for the operation resolver to perform the requested data interchange operation.

From block 1710, routine 1700 continues to block 1712, where the source object is retrieved from the source location as defined in the data interchange operation definition. Routine 1700 then continues to block 1714, where the source object may be decrypted, if necessary. Methods and systems for decrypting data are well known to those skilled in the art. From block 1714, routine 1700 continues to block 1716, where the specified transformation is performed on...

...may result in the conversion of a source object to a different format, change the mapping of the fields in the source object, or other data transformation as known to those skilled in the art. An illustrative routine for performing the specified transformation is described below with respect to FIGURE 57A...

...1718 where the target object is encrypted if required. At block 1720, the target object is saved at the target location as specified in the data interchange operation definition. From block 1720, the routine 1700 continues to block 1722 where a determination is made as to whether the data interchange operation was successful. If, at block 1722, it is determined that the data interchange operation was successful, the routine 1700 branches to block 1724 where a success operation is performed as defined in the data interchange operation definition. A successful operation may comprise the same or another data interchange operation, and may be triggered by transmitting an appropriate message to the message database 54. Likewise, at block 1726, a success workflow may be performed if specified in the data interchange operation definition. In this manner, an entire workflow may be executed in response to the success of the data interchange operation. A workflow may be triggered ...an appropriate message to the message database 54, as described above. Additionally, at block 1728, a success message may be transmitted if specified in the data interchange operation definition. From block 1728, the routine 1700 returns to 1704 to continue processing requests from the WO 01/69431 PCT/USOI/08611 operation definition. Moreover, at block 1734, a failure message may be transmitted if specified in the data interchange operation definition. The operation resolver may also log the status of the workflow operation in the instance database 58. From block 1734, the routine 1700 returns to block 1704 where additional requests from the workflow engine to perform data interchange operations are received.

As described above, a data interchange operation may utilize source and target documents in XML format, flat file format, flat database format, hierarchy file or hierarchy database format, EDI format, or other similar datafile formats. In order to effect the mapping and transformations of files in these formats, data is first classified into two groups, namely, XML or non-XML data. By classifying the data into these two groups, data transformations may be performed using only four methods: XML to XML, XML to non-XML, non-XML to XML, and non-XML to non-XML...

...write the file. For the remainder of the file formats, an object model, called the Commerce Route Object Model ("CROM") is utilized to handle the data transformation. The CROM includes two kinds of objects, the base object and the container object. The base object is used to store data element information such as a node, a value, or an attribute. Additionally, the base object contains the position information in the data tree, and a flag field to indicate whether the attribute is a primary key or a foreign key, and to show whether the node is a multiple instance node. The container object contains the collection of the root nodes of the tree. The container object also defines methods for parsing the structure file, creating structure trees for mapping, reading data files, and other functions such as searching a data element in the tree. As described above, before a data mapping or transformation operation may take place, a user must define the relationship between a source object and target object. In general, the structure of the data elements is hierarchical. In order to show the structure, CROM creates a browser tree (such as the available source fields 1532) from the structure file, such as an industry standard Document Type Definition ("DTD") for XML, or a proprietary.SCM file for non-XML formats. The.SCM file contains not only the table and CROM information for the data, but also defines the parent/child relationships between tables. Once the user has created the mapping and/or transformation to be applied to the source...

...be appreciated by the reader that for each file format, CROM provides a reading function and a writing function. The CROM first reads the source data and transforms the source data into a common data structure to which the writing application may be applied. By utilizing a common data structure for all file formats, the transformation and mapping process is greatly simplified. The CROM object is used to represent the definition of a mapping and transformation operation, and is called a "STRUCT tree object." A DATA tree object is used to represent the data when a transformation takes place. As will be described in more detail below, the object may comprise a node, the value of the node, or an attribute of a node. The node object may also contain a flag to indicate whether the node object is a single node or a multi-instance node. The routine 1950 begins at block 1954, where the source document at the source location is read. Depending on the source data type, CROM calls a reader to generate a source data tree object. At block 1956, the DTD or SCM file is read. The file is then parsed to create the target STRUCT tree object. At block 1958, the target STRUCT tree object is "walked" to visit each node in the tree. Walking a tree in this manner is well known to those skilled in the art. At block 1960, each node in the tree is identified, and for each node blocks 1962-1968 and blocks 1974-1982 are performed. Blocks 1962-1968 are performed if the node comprises a multi-instance tree object. Blocks 1974-1982 are performed if the node is a single instance node. If a determination is made that the node comprises a multi-instance STRUCT tree object, the routine 1950 branches to block 1964 where the mapping definitions for the node are collected and analyzed. At block 1966, the deepest descendant child node of the tree object is identified. At block 1968, blocks 1978, 1980, and 1982 are performed for each descendant

child node to create a data node object. Once these blocks have been performed for each node, the routine 1950 continues to block 1970 where the target object is written at the target location.

If a node is determined to be a single

instance node, the routine 1950 branches from block 1960 to block 1976, where a target data node object is created. At block 1978, all mapping definitions of the node value and its attributes are defined. At block 1980, all source data elements appearing in the mapping definitions are identified and the source data elements are defined from the source data tree object. At block 1982, the specified transformation is called to define the target value and its attribute in the target object. At block 1970, the...

...of the scheduler 820 (shown in FIGURE 27) will be described. As described above with respect to FIGURES 41 and 42, the user may define schedules for the execution of data interchange operations. The scheduler 820 is operative to receive the schedules defined by the user and to perform the data interchange operations at the time periods specified in the schedule. Routine 1750 performs this functionality. Routine 1750 begins at block 1754, where the schedule retrieves the current time. At block 1756, the schedule retrieves the occurrence schedule from the WDI database 818. As described above with respect to FIGURES 41 and 42, the occurrence schedule defines the times at which the data interchange operation should be executed. Routine 1750 continues from block 1756 to block 1758 where a determination is made as to whether any scheduled operations...

...to whether an operation status flag is set associated with a scheduled operation. As described above, if an operation status flag is set for a data interchange operation, that operation should not be performed. Therefore, if an operation status flag is set, the routine 1750 branches to block 1762, where the scheduled operation may be skipped. If an operation status flag is not set for the scheduled data interchange operation, the routine 1750 continues to block 1764 where the scheduled data interchange operations are executed. As described above, data interchange operations may be executed by the schedule by transmitting an appropriate message to the message database 54 which causes the workflow engine to execute the scheduled data interchange operation.

#### Server Administration

In order to monitor and administer the operation of the workflow engine 52, a menu option for server administration may be provided to users of the automated business process system. Referring now to FIGURE 59, an illustrative routine 1800 for administering the operation of the workflow engine 52 will be described. Routine 1800 begins at block 1804 where a login is received from a registered subscriber of the automated business process system. Once a valid login has been received, routine 1800 continues from block 1804 to block 1806, where a selection is received from the server...

...1824 is displayed in FIGURE 60, and includes a list of all operations performed by the system. The system log 1824 may also include the

data and time the operations were performed, the source object, error codes, and other status messages associated with each operation. According to an embodiment of the present invention, this information is stored in the instance database 58, as described above. If, at block 1808, it is determined that the user has selected the menu item...

...user. An illustrative error log 1826 is shown in FIGURE 61 and includes lists of all errors encountered by the server during the execution of data interchange operations.. If, at block 1808, it is determined that the user has selected a menu item for viewing an operations queue, the routine 1800...

...the invention, the WO 01/69431 PCT/USOI/08611 the source objects to create target objects, and saving the target objects at a target location. Data interchange operations may be performed in response to a user command, in response to a user defined schedule, or as part of a workflow process. Additionally, data interchange operations may trigger other data interchange operations, workflow processes, or messages, in response to their success or failure. VWhile the preferred embodiment of the invention has been illustrated and described...

...invention. The embodiments of the invention in which an exclusive property or privilege

is claimed are defined as follows:

1 . A method for performing a data interchange operation, comprising:

receiving a request to perform said data interchange operation comprising the identity of a source object, a source location, a target location, and a transformation;

and

in response to receiving said request, executing said data interchange

operation by:

retrieving said source object at said source location,

performing said transformation on said source object to create a target object, and

saving said target object at said target location.

2 The method of Claim 1, fluther comprising:

determining whether said data interchange operation was successfully

executed; and

executing a success data interchange operation in response to

determining that said data interchange operation was successfully executed.

3 The method of Claim 1, further comprising:

determining whether said data interchange operation was successfully

executed; and

executing a success workflow in response to detennining that said data

interchange operation was successfully executed.

4 The method of Claim 1, further comprising:  
determining whether said data interchange operation was successfully  
executed; and  
executing a...

15/3,K/17 (Item 8 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00829975 \*\*Image available\*\*  
APPARATUS AND METHOD FOR VOLUME PROCESSING AND RENDERING  
DISPOSITIF ET PROCEDE DE TRAITEMENT ET DE RENDU DE VOLUME

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Detailed Description

Detailed Description

... allow high-bandwidth communication of ray information instead of the  
usual up-over-down communication that occurs within the memory hierarchy.

The processing in the ray tracing architecture does not follow a  
strict sequence as found in prior art volume rendering accelerators.  
Instead, the work to be performed is grouped into 3D blocks. The 3D  
blocks are then processed (e.g. rays cast or traced,, I 0 or  
segmentation performed) according to an order where the block which will  
provide the most results while being the closest...



...now to Figure 55, a 2D top-down view of a typical 3D scene to be rendered is shown divided into cells 514 by a scheduling grid 516. All volume 518 and polygonal 520 data are distributed among the scheduling grid cells 514 which they intersect. Rays 522 are cast into the scheduling grid 516 and stored in queues 524.

Referring now to Figure 56, the processing element 501 of the ray tracing architecture includes a scheduler 526 and dispatcher 528 that communicates between a buffer (FIFO) 530. The scheduler 526 and dispatcher 528 have knowledge of the scheduling grid 516 and the associated list of ray queues 524. The scheduler 526 determines which blocks to process and in which order. The scheduler 526 selects the best block based on the current state of ray queues 524 and the current state of the memories according to a heuristic metric. The scheduler 526 stores a list of blocks to process in the FIFO buffer 530. The dispatcher 528 transfers blocks to individual processing units 500 and controls the movement of sampled and geometry data among the three levels of the memory hierarchy--Level 1 (eDRAM) 512, Level 2 (SDRAM) 506, and Level 3 (main) 508. In this way, it is assured that the correct data are available when a processing unit 500 begins to process a block.

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The cells 514 are scheduled for processing in an order that minimizes the total processing time based on the status of the rays 522 and ray queues 524. Further, the scheduler 526 considers that data distribution throughout the memory hierarchy as well as the contribution of each cell 514 toward completion of the processing.

Traditionally, scheduling can be performed in one of two ways, either geometrically, for deterministic processing such as raycasting, or heuristically for non-deterministic algorithms such as ray tracing. Examples of heuristic methods are greedy algorithms such as scheduling the next cell with the most work, or statistical probability methods such as ratios of ray-queue length to count of non-transparent objects as described in *Rendering Complex Scenes with Memory-Coherent Ray Tracing*, by M. Pharr et al., *Computer Graphics SIGGRAPH97*, pages 101-108, Aug. 1997.

Prior attempts have been made to design an algorithm which utilizes interframe coherence to schedule more efficiently. A dependent graph for each frame showing which cells send rays to which other cells was built. For the next frame, the graph built from the previous frame to guide the new cell processing order was utilized. Unfortunately, for ray tracing the dependency graph becomes "locally complete". This means that any cell depends on every single one of its neighbors, and is thus connected to every neighbor. Since rays cannot jump over cells, each cell is connected only to its neighbors, but is connected to all of its neighbors. This is what "locally complete" means. The graph is not "complete" because that means every node is connected to every other node. In addition, the "locally complete" graph is not much use for aiding in the scheduling of cells since a selection cannot be made as to which cell should be scheduled before it's

neighbors. The dependency graph does not contain the information needed to schedule cells because there is no order to the dependency relations.

Referring now to Figures 56A through 56F, a method known as ray forest for scheduling cells based on inter-frame ordered dependency relations is now described.

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A ray forest 540 is a group of trees, one tree 542 for each ray 522, which represents ordered information about how rays propagate through the scheduling grid 516. Since rays 522 in a ray tracing application span multiple child rays, the data structure associated with each ray 522 is a tree 542 where each node 544 represents a ray 522 traversing from one cell 514 to another, and leaves represent cells where rays terminate and place their contribution into the resulting image. There are three different actions that could occur when a ray 522 is processed in a cell 514.

1 . The ray passes through the cell touching no objects. In this case, the node has one input and one output (i.e. the node is locally a "twig").

2. The ray hits an object and spawns a child shadow ray 550, a plurality of reflected rays 548 (if the surface is reflective) and a plurality of child transmitted rays (if the surface is not totally opaque). In this case the node has one input and multiple outputs, one for each child ray.

3 . The ray terminates either by hitting an object or exiting the world at this cell. In this case, the node is a leaf of the tree.

In the ray forest method, each scheduling grid cell appears in multiple nodes, and a single cell can occur in the same tree multiple times. For example, consider the case where a ray bounces back and forth between two reflective objects in alternating cells. Referring now to Figures 56B and 56C, RAY "A" enters cell number 8 and traverses through cell number 5 to interact with an object 546. A first reflected ray 548 bounces back through cell number 5 into cell number 8 and out through cell number 7. A second reflected ray 550 bounces back through cell number 5 and out through cell number 7 towards a light 552 illuminating the scene. The tree 542 labeled RAY "A" in Figure C has a data structure representing the path of RAY "A." RAY "B" also illustrates these concepts in Figures 56B and 56C.

Referring now to Figures 56D through 56F, to utilize the ray forest method to

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schedule calls, the top k nodes of all ray trees are considered. Heuristic algorithms such as the greedy or statistical methods mentioned above determine the next cell to process. When a cell is processed, all the rays waiting to enter that cell are processed.

The trees which represent these rays are "popped". This means that the top node is taken off these trees. If the node is a "twig", the tree remains the same, if the node has multiple children, each child "branch" becomes a new tree in the forest representing all the new rays which were spawned.

Since  $k$  nodes at the top of each tree are looked at, "future" information is  $10$  acquired about what cells will soon be processed and an attempt to not remove them from the lower levels of the memory hierarchy right before they are about to be processed is made. The number of levels  $k$  that are considered, is a tradeoff on accuracy of the scheduling and runtime of the scheduling portion of the algorithm.

1 5 The forest of trees will only represent what actually happens to rays in the new frame if no rendering parameters (viewpoint, transfer function, lights, etc,) change since ray forest information from the previous frame is used. Although this is not the normal case, the change from one frame to the next is generally considered to be minimal. Inter frame coherence takes advantage of these minimal changes to estimate the best scheduling for the next frame. However, since there is some change, the ray forest must be able to deal with the rays not acting exactly like they did the previous frame.

Texture mapping is widely used technique to stimulate high-quality image effects, such as surface details...

- ...hierarchical memory architecture. In this combined architecture, the polygon engine's only responsibility is to rasterize triangles, while Cube 5 will perform the texture lookups. Rays are initialized with the data from the  
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rasterized polygonal image. This would include the  $(u,v)$  texture coordinates and a texture index. In this way deferred texturing can be accomplished so that only visible...
- ...such quality is desired. Deferred texturing lowers the cost of utilizing such higher quality methods. Additionally, the system coherently accesses texture images through the memory hierarchy. Further, programmable deferred shading (such as Renderman shaders or procedural textures) is possible by storing the required parameters during rasterization.

The system also supports ray tracing mixture of polygons and multiple volumes using the scheduling grid cells to reorder the processing to memory coherent chunks. Applications which do not require the image quality produced by ray tracing polygons, can utilize polygon rasterization hardware. External polygon rasterization is used to allow much larger polygon datasets to be rendered at much faster frame rates.

The projected RGBaZ image is used to initialize the ray endpoints. Subsequently, the volume is rendered terminating the rays at the proper depth. This leverages existing geometry hardware to correctly render, in real-time, opaque polygons in harmony with volume rendering.

An architecture known...it receives both the volume data and polygons. The rays which are processed for that cell are, first, intersected with the polygons. The closest  
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intersection point is stored in the ray and the ray is cast through the volume data, stopping at the polygon intersection point. Scattering (transmission or reflection) is computed and the secondary rays are similarly processed. EUREKA rasterizes polygons in the geometry pipeline to allow large polygon datasets to be rendered at high frame rates. The projected RGBaZ image is used to initialize the ray endpoints.

Subsequently, the volume is rendered terminating the rays at the proper depth. This leverages existing geometry hardware to correctly render, in real-time, opaque polygons in harmony with volume rendering. Translucent polygons must be rendered in sorted order to yield correct results. The recursive ray tracing algorithm automatically handles any number of multiple translucent polygons.

Texture mapping is a widely-used technique to simulate high-quality image effects, such as...

...desired. Deferred texturing lowers the cost of utilizing such higher quality methods. Image-based techniques use images as rendering primitives. Rendering then becomes a resampling process, which can be efficiently implemented using a generalpurpose CPU possibly with the assistance of texture-mapping hardware. Preferably EUREKA supports image-based rendering techniques with...

...pre-integrated into a 2D table, also called the footprint. Points can be located at arbitrary positions and can be represented as a multi-resolution hierarchy. EUREKA's ray-directed rendering approach will render points using the ray-based point-array traversal scheme of Mueller and Yagel . In that approach, rays traverse the points in volume space, computing the footprint table indices by simple differencing equations. The needed coefficients can be stored with the ray.

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Tomographic reconstruction is a technique used to recover 3D volumes from a set of 2D projection images. These images can originate from an X-ray scanner as well as a photographic camera. Tomographic reconstruction consists of a series of volumetric backprojections, possibly intermixed with a series of forward projections when an iterative reconstruction algorithm is chosen. Both forward and backward projection can be efficiently implemented in EUREKA. The ray-directed approach enables the modeling of ray scattering and attenuation, which is crucial for highfidelity reconstruction of volumes from functional modalities, such as SPECT and PET. Especially the functional modalities will benefit...

15/3,K/18 (Item 9 from file: 349)  
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00772919      \*\*Image available\*\*  
AUTOMATIC    WORK    PROGRESS    TRACKING    AND    OPTIMIZING    ENGINE    FOR    A  
TELECOMMUNICATIONS CUSTOMER CARE AND BILLING SYSTEM  
MOTEUR DE SUIVI ET D'OPTIMISATION D'ACTIVITE AUTOMATIQUE POUR UN SYSTEME DE  
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Detailed Description

#### Detailed Description

... is directed to a system for work progress  
tracking and management and, more particularly, to a system for  
assigning tasks to a workforce, optimizing the scheduling of the  
tasks,  
1 5 with automatic rescheduling of the tasks while insuring the  
completion  
of the tasks before the desired completion date and utilizing...

...wireline, wireless, residential customers, and business  
customers Further, business customer orders are often many times  
more complex than those found in the residential marketplace To  
schedule staff for these customers, telecom companies need to  
reflect  
the customer's value Often a customer's value may be assigned  
designations such as gold...

...a percentage of the workforce that are reserved just for maintenance tasks This percentage of the workforce dedicated to maintenance must be "invisible" to the scheduling process and be 1 5 able to fluctuate from one day to another Scheduling optimization also must be based on more than one parameter One such parameter is order priority, which may reflect the value of the customer as discussed above Another is flexibility, which is needed to reflect the desired workforce utilization For example, one telecom company may desire to schedule their areas Given the number of possible permutations based on daily based on the latest data Examples of workflow products include InConcertT' and FileNetTM InConcerttm provides interface to MSProjeCtTM , which is single-dimension planning There is no rules engine within either...

...tracking system is needed that is sophisticated enough to handle the above described level of complexity, which also can include integration among workflow, Page 5 scheduling, and workforce management, while also applying automatic re-optimization on a regular basis This system should also operate without significant manual intervention and schedule tasks based on several constraints

#### SUMMARY OF THE INVENTION

It is an object of the present invention to provide a method of integrating workflow, workforce management and scheduling functional paradigms

It is a further object of the present invention to combine state of the art tools (an inference engine and a sophisticated scheduler...

...and offline optimization based on configurable criteria It is a further object of the present invention to automatically re optimize all orders based on the data gathered during the day (deltas of actuals and planned, new orders, and canceled orders) It is another object of the present invention to optimizes schedules based on multiple criteria including minimization of costs, minimization of gaps in work pool assignments, order priority (high, medium, low), and jeopardy to the schedule It is still a further object of the present invention to combine the foregoing objectives with a sophisticated scheduler that considers the start and finish dates and considers the target percentage workforce utilization when scheduling It is a further object of the present invention to automatically reschedule all jobs offline when a change in utilization parameter occurs Thus, when the...

...current jobs to reflect the change in the workforce Page 6

It is an additional object of the present invention to be able to flexibly schedule taking into consideration the geographical area With such a geographic capability it is possible to include members of a different work pool to help with...

...needed Once such work pool members are designated as available outside the home base, the system automatically takes their availability into account during the offline scheduling run and re schedules all jobs accordingly

It is also an object of the present invention to allow for flexibility 10 of the system in the area of...to customer premises

When rescheduled, it would be desirable to insulate the customer from changes, i e "lock" the task where such dependency exists, and schedule around it Another example of locking is scheduling against a given date, e g customer says he'll place an order if it can be fulfilled by a particular date It would be...

...the completion date and ensure rescheduling does not impact it

It is still a further object of the present invention to provide for flexible workforce scheduling based on multiple parameters These can reflect such items as "customer value", utilization percentage (the same workforce typically works on installation and trouble tickets, so...

...zones (frozen zone, stability zone, optimization zone), and duration of time slots

It is a further object of the present invention to perform on-line scheduling of new and modified activities during the day as they occur

It is also a further object of the present invention to maintain stability of the schedule with respect to re-scheduling This stability of the schedule relates to the frozen zone, stability zone, optimization zone The zones and their functions are described in detail later, together with pictorial representation The other aspect of stability of the schedule is the flexibility to "lock" tasks (either dependencies or delivery dates) so as to make internal schedule changes transparent 5 to the customer

It is still a further object of the present invention to produce highly optimized schedules These schedules take into consideration order priority, make duration of composed activities small, and avoid gaps in work pool utilization activities typically comprise several tasks The system schedules as many of the tasks in parallel as possible, thus producing the shortest possible critical path for the overall composed activity Further, these schedules plan for as many activities as possible

It is also an object of the present invention to take into consideration that activities have to be...

...work pool members

It is still a further object of the present invention that the system not violate certain constraints and should not yield empty schedules,

i.e. the user get back a valid schedule but certain constraints can be softened  
It is an object of the present invention to compute a target completion date for orders that do not...

...fulfilled

The above objects can be attained by a system that manages BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a diagram of an activity tree generated by a customer order

Figure 2 is a diagram showing the five different time zones related to optimization and scheduling of the present invention

Figure 3 is a diagram showing the physical architecture of the present invention with a client personal computer ("PC"), an application server (where scheduling, workflow, calendar functions take place), and a database server

Figure 4 is a diagram showing the overall software architecture  
Page 9

for the present invention for both the distributed online system and distributed offline system

Figure 5 is a data flow diagram of the online system showing the progression of activities during the day Such activities include new activities being entered, older activities being modified...

...Figure 8 is a flowchart further detailing the offline system shown in figure 5

Figure 9 is a diagram showing the overall software architecture and data flow for distributed offline system in the present invention

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before discussing the features of the present invention a summary of...all truck drivers in

Boulder may be considered a resource pool since they are in the same geographic area and possess the same skills The scheduling  
Page 11

system assigns tasks to resource pools Assignment of worker names to resources is done shortly before the task is due to start...

...people rotate (e.g. John

Smith, who is Technician I leaves, and Jane Doe who is also Technician I joins, this is transparent to the scheduling subsystem

A calendar defines the times when a workforce resource fills capacity in a time slot There are periodic times of unavailability like weekends, shifts...

...Page 12

A calendar rule defines the dates and time a workforce resource for a resource pool is either available or unavailable for assignment This information includes the workforce member's sick days, shift schedule, and vacation

Scheduling is the process of organizing a set of activities into

an "optimal" order, based on the parameters supplied The scheduling of each task takes into account dependencies, priority, duration, staff availability per job category (work pool), and material



resources During the day, on-line scheduling is performed on an  
1 0 order-by-order basis During the night, offline optimization runs are  
started for all orders in the system  
An...

- ...time slot If a task is longer than the time slot,  
the task is assigned to several time slots For example, a task has a  
process time of 3 hours, but time slots have duration of 2 hours In  
this case the task starts at the beginning of the first time...
- ...are performed by the computer system  
1 5 without human intervention Activities are the basic components in  
the present inventions  
Constraints are directly related to scheduling of tasks  
Examples of constraints include time constraints indicating starting  
and finishing times, precedence constraints indicating that a task is to  
start after the end...
- ...The template specifies in which order  
tasks need to be done and the task duration It is the "best case"  
situation, i e such a schedule would be met only if all resources  
were  
available as per such template The template is then taken as input to  
the planning and optimization process, where the tasks are checked  
against resources available in the work pool, or external resources  
Page 14  
(e g materials availability) The "real" schedule is then derived  
based  
on the order priority, work pool resources and the schedule  
tightness  
The workflow templates support conditional branching, as well  
as branches within branches This is done through the creation of  
branches within the workflow and...
- ...of which are illustrated in the accompanying drawings,  
wherein like reference numerals refer to like elements throughout  
Figure 1 is an example of an activity tree A customer order  
entered through a PC client system 100 shown in figure 3 is mapped  
1 5 to an internal order 10 (10") Internal work  
orders 40 ("WO") Finally, WO's 40 may be divided into one or more  
tasks 50  
Figure 2 illustrates a time line having five different time  
zones  
related to optimization processing The times zones start with a  
horizon past to zero point time zone 62 Tasks, which...
- ...represents a  
time period in the future An individual resource assignment made for  
tasks that start in this zone 64 cannot be changed Thus, the  
schedule engine 170 shown in figure 4 is not allowed to touch tasks  
in  
this zone 64 Again, the system only takes into account the  
corresponding...
- ...frozen time zone is one day  
The purpose for the frozen time zone 64 is to prevent the  
system from making last minute changes to schedules to which it WO

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a gap of one hour, but all outstanding tasks are two hours. If there is a gap of two hours and the online system 101 needs to schedule a two hour task, it would fill this gap. Gaps are defined as "installation gaps", obviously a company would have workers do other non installation work rather than keeping them idle. The scheduling engine is allowed to fill in gaps in stability zone 66, but not to take out or move tasks already scheduled. This is done to...

...by an authorized user and can vary according to the authorized user's preference.

Still referring to figure 2, in the optimization zone 68 the schedule engine 170 shown in figure 4 is allowed to re-assign activities. Hence, this zone 68 is not stable with respect to 1.5 rescheduling. Work orders may be rescheduled in order to produce the optimum schedule possible. The typical length of time for the optimization zone 68 is two months. However, the length of time for this period may be altered...

...changed at any time.

Referring to figure 3, this figure illustrates the overall physical architecture of the present invention in the form of a three tier computer system. Figure 3 depicts a PC (personal computer) client system 100 connected to an application server 110, and a database server 120. Page...

...The PC client system 100 acts as primary interface to order entry staff and permits the entry of new orders, modification of orders and deletion of orders. The application server 110 is where scheduling, workflow, and calendar functions take place. The database server 120 is where the data is stored. The architecture shown in Figure 3 is called a 3-tier architecture. The main advantage is that if the application server 110 is overloaded, the customer can simply add additional application servers 110...

...MS Project is used to graphically represent the relationship among different tasks. However, it should be noted that all optimization is done by the scheduling engine 170, not by MS

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Project Orbix from IONA is the Object Request Broker of choice used for communications between the PC...

...views represent the Graphical User Interface. A Customer Service Representative (or any other user) uses to interact with the system. All application logic, i.e. scheduling, workforce management, WO 01/06426 PCT/US99/16442

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server 110 uses sophisticated 3rd party technology - ILOG Rules, ILOG Solver and ILOG TM Scheduler (not shown) which form the basis of the schedule engine 170 shown in figure 4. ILOG TM Rules is an inference engine, which facilitates the construction of intelligent

agents for decision making in real...logic is best described as a set of interacting rules that govern actions in response to known conditions Rules are used to govern task and information routing [LOG TM Rules supports both C++ and Java The implementation described in this invention is in C++ ILOG TM Solver is a constraint-programming...

...use two ideas a) Explicitly represent the set of values that a decision variable can take, b) Represent the search for a solution as a tree traversal When ILOGI solver follows a branch of a node , it assigns the value of the branch to that variable Solving the problem can thus be visualized as finding a solution from the "root" node down to the "leaves"  
ILOG TM Scheduler utilizes the ILOG TM Solver engine by  
Page 20  
integrating algorithms specific to scheduling (e g links between activities and resources)  
The application server 1 1 0, shown in figure 3, includes an inference engine 103 (also known as...

...basic building block for the workflow part of the system The ILOG TI Rules available from ILOGI product is preferably used as the inferenceengine103 Theapplicationserver110alsoincludesa schedule engine 170 shown in figure 4, capable of optimizing on several parameters through the recognition of Boolean operands (e g 'AND','Offetc) The ILOG TI Solver and Scheduler available is preferably used as the schedule engine 170 shown in figure 4 The following table serves to define all items that appear in figure 3  
Layer Description  
ACL AMS Class Library...

...well as "black box" components like Architel ASAP and ISIS Papyrus that provide standalone application services On a PC client, this covers products from Sting Ray (e g , Objective Toolkit grid controls)  
In a typical environment there are a large number of PC client systems100 Alsothesystemworks inadistributedfashionsothat both the application server 1...115 (Customer Care/Order processing interface server), shown in Figure 5, through which an order is sent from Customer Care to Order Processing Third, the scheduling engine170 takes the template as input to online optimization, checks on the availability of resources in the resource pool and comes up with the "realistic...

...rather than the "best case" workflow, which was the starting point  
An example of an automatic addition is a new order The order 0 construction process invokes the workflow engine 185 shown in figure

4 and then invokes the schedule engine 170 (ILOG TI Solver/Scheduler) shown in Figure 4 The scheduling engine 170 schedules a new order  
An example of a manual modification is the completion of tasks, where the actual completion time and date are entered into the...

...for task X  
is not fulfilled until 6/5 The workflow engine 185 detects a new request and puts the newly modified order through the scheduling engine in the offline run, which results in task X starting on 6/5 A clean up occurs when the workflow engine 185 detects a new/modified task and runs it through the schedule engine 170 The schedule engine 170 corrects the inconsistencies and contradictions This checking and clean up function of the workflow engine 185 has  
Page 26  
two positive side effects...

...an activity  
will have at most one branch as its immediate parent, although the activity may "belong" to more than one branch, via the branch hierarchy Descendants of a deactivated branch are deactivated A branch's activation is controlled by a set of user-defined predicates, or execution conditions A condition...

...If a  
branch is evaluated to true then the tasks and work orders contained within the branch are automatically added to the workflow  
Page 27  
Scheduling Input  
Each day new customer orders are entered into the system using the PC client system 1 00 The orders comprise dependent tasks 50 shown...

...This is to enable the distributed offline system 102 to re-optimize based on the latest situation captured through actuals during the day  
The online scheduling accomplished by the distributed online scheduling system 101 is illustrated in Figures 5 and 6 Referring to Figure 5, a customer service representative enters a new order using the PC Client...

...without any workforce intervention, in which case the workflow engine guides the order through the other computer systems (not shown) to the completion When human scheduling is required the following steps occur  
Page 28  
First, the order is put into a scheduling queue 130 to be picked up by the Resource and Locking Server 180, which starts scheduling engines 170 and maintains a pending queue 140 and a running queue 150 Jobs whose resource pools are being used to schedule another order are kept in the pending queue 140 Jobs, which have free resource pools move to the running queue 150 to be scheduled by the scheduling engine 170 The scheduling engine accesses data  
- e g workforce availability - in the database 120  
Referring to Figure 6, in operation 1010, the online transaction

are started As provided in operation 1020...

- ...the constraints is transmitted to the application server 110 The application server 110 puts the job to be scheduled onto pending queue 140 The Resource Locking Server 180 shown in figure 4 ensures that multiple scheduling engines do not access the same resource pool at the same time In other words, it prevents double booking of the resource pool resources The workload server 160 shown in Figure 5 balances scheduling load among the Scheduling engines 170 The scheduling engine 170 of figure 5 retrieves data from other  
Page 29  
sub-components as shown in operation 1040 of figure 6 A Workflow Area/Planning Area sub-component includes information about activities, information about pool requests, and information about dependencies Examples of activities include activity name and activity duration Examples of work pool activities include availability of a work pool member using a...
- ...Task B can only start after Task A is complete The Resource Pool Area sub-component (not shown) 1 0 contained in database 120 includes information about resource pools, and information about time slots Automatic tasks are done without workforce intervention They get executed in real time or near real time These automatic tasks are not...
- ...from the PC client system 100 "Actuals" is information on activities in progress during that day as shown in operation 1 1 00 and 1110 of Figure 7 The "actuals" reflect the latest status of activities, e g completed on schedule, completed earlier than forecast, and completed later than forecast, or a new forecast completion date for tasks which started and will finish earlier or later...
- ...are kept in the "pending" state with a new forecast completion date as provided in operation 1 1 30 of Figure 7 Once the new schedule is created, the distributed online system 1 01 stops execution of this transaction in operation 1 1 50 The workflow engine 185 ensures that no...
- ...the solution search If this time limit is reached, the search will stop and some constraints must be relaxed This time limit is configurable The schedule engine 170, shown in figure 4, executes the following operations in operation 1040 of Figure 6  
1 Check temporal constraints of a first type (dependencies...
- ...the afternoon or the following day  
3 Pre-select time slots requires the reading of the existing assignments for the pre-selected time slots The scheduling engine 170 now examines what capacity is available in which time slot The examination is against resources in work pools

4 Solve problem using constraint propagation on the set of selected time slots using scheduling engine 170 shown in Figures 4 and 5

Distributed Offline System

The distributed offline system 102, shown in figure 9, takes all  
Page 32

orders...

...8 In operation

1200 of Figure 8, the distributed offline system 102 is triggered automatically by the Calendar Rule Engine 182, using a configurable parameter

Scheduling Input

The distributed offline system 102, shown in figure 9, and the distributed online system 101, shown in figure 9, complement each other It uses...

...up Activities

The distributed offline system 102 shown in figure 9 runs periodically, nightly It then takes as input from database 120 all of the data gathered during the day by the online system through the PC client system 100 including new orders, canceled orders, modified WO 01/06426 PCTIUS99...

...noted that the start and duration of

the optimization zone shown in Figure 2 is modifiable

In operation 1230 the offline system 101 reads data from the 100 database 120 to get the latest picture (new orders, canceled orders etc ) Operation 1230 is an initialization operation executed prior to...

...majority of the orders under

consideration were already planned during the running of the distributed online system 101, shown in Figure 5, using the scheduling

engine 170 shown in figures 4 and 5 Thus, the required order parameter is calculated for the distributed offline system 102, shown in Figure 9...

...are relative

numeric weight values which determine how important the three values used to calculate OrderParam are, normalized so that TightnessWeight + DueDateWeight + PriorityWeight = 1 (reference data)

AVGManualTasksmeans Take the average of the formula, for all Manual Tasks in the 100

MaxOrderParam = 10,000 The maximum value possible for OrderParam This...

...of the Frozen Zone is 0, and the end of the

Optimization Zone is represented in units of whatever the minimal time grain is (reference data)

Horizon TimeGrain-scale value for "End of Optimization Zone"

ManualTask StartMin attribute The earliest starting time for the task, in TimeGrain-scale

Manual Task StartMax...HIGH

TightnessTerm = TightnessNormFactor \* (Horizon - (StartMax StartMin)) / ProcTime ) NOTE, however, the ProcTime term

should eventually be changed to be (Horizon - ProcTime)  
 DueDateTerm = DueDateNormFactor \* (Horizon - StartMax  
 Optimization process  
 The new schedule is optimized with respect to certain criteria  
 using optimizer application 195 of figure 4 and as shown in operation  
 1240 of Figure 8  
 Referring to operation 1240 of Figure 8 and Figure 5, all  
 internal orders are retrieved from database server 120 by  
 scheduling  
 engine 170 and added to the pending queue 140 of the resource and  
 locking server 180 The jobs in the pending queue 140 are sorted...  
 ...e Planned Vs Actual), as described in the preferred  
 embodiment, operation 1140 can attempt to find a free time slot such  
 that the current day schedule would be optimized taking the delta  
 between Planned and Actual completion into account If the workflow  
 engine succeeds in operation 1140, the problem is solved...

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00750462 \*\*Image available\*\*  
 ANIMATION OF THREE-DIMENSIONAL CHARACTERS ALONG A PATH  
 ANIMATION DE CARACTERES TRIDIMENSIONNELS LE LONG D'UNE TRAJECTOIRE  
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 Detailed Description

Detailed Description  
 ... the purpose of animation. In both of these displays, the text is  
 displayed in a three-dimensional form. This interface may be combined  
 with a timeline editing interface for editing an associated video  
 program, or other user interface, to permit layering of titling effects  
 and adjustment of animation properties and timing...3;

Fig. 5 is a flow chart describing how the data structure shown in Fig. 3 may be processed to determine properties associated with each node in the structure;

Fig. 6 is a flow chart describing how a character may be rendered;

Fig. 7 is a flow chart describing how a...WindowsNT, Windows 95 or 98, IRIX, UNIX, Linux, DOS, VMS, MacOS and OS8 are examples, which controls the execution of other computer programs and provides scheduling, debugging, input/output control, accounting, compilation, storage assignment, data management and memory management, and communication control and related services. The processor and operating system defines ...0), by Segal and Akeley, all of which are hereby incorporated by reference in their entirety.

Referring now to Fig. 3, in one embodiment a data structure which represents a titling effect to be applied to video is a scene graph. The implementation may be object oriented.

The scene graph object may be implemented as a tree or other structure such as a list, array, etc. An example of such a tree is shown at 50 in Fig. 3. The tree has a root node 52. The root node has a collection of children nodes which may be, for example, a text box 54 or shape 56 or page deck 55. The root node also has associated with it a collection of property stacks which will be described in more detail below.

A shape object is any arbitrary closed two-dimensional shape, such as a rectangle, circle or triangle. Accordingly, a shape node 56 is represented by data defining the shape, such as a Bdzier.

A text box object 54 is defined as a collection of characters, which...

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00579160 \*\*Image available\*\*  
EXPERT SYSTEM FOR CONVERTING DATA RECORDS FROM A TABLE-BASED FORMAT TO A  
DATA TREE FORMAT  
SYSTEME EXPERT PERMETTANT DE CONVERTIR DES FICHES EN FORMAT DE TYPE TABLEAU  
EN FICHES EN FORMAT DE TYPE ARBORESCENCE DE DONNEES

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MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA  
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Detailed Description

Claims

#### Claim

1 . A method for converting data records from a table-based database format to nodes of a data tree format, including the steps of. (a) creating a data tree framework by defining a root node containing a unique identifier and at least one attached container node;  
(b) for each attached container node, retrieving all data records from the table-based database having an identifier field value matching the unique identifier; (c) matching a parent sequence number stored a current retrieved record to a parent sequence number of a current container node;  
(d) attaching a descriptor node containing data from the current retrieved record as a child node of the matching container;  
(e) repeating steps (c) and (d) for a next retrieved record; and  
(f) repeating steps (b) though (e) for a next container node.

2 The method of claim 1, further including maintaining the number of child nodes between 3 and 5.

3 A method for converting data records from nodes of a data tree format to records of a table-based database, including the steps of:  
(a) reading a first node of the data tree; and  
(b) determining if the node has a sequence identifier, and:  
(1) if so, updating a corresponding record in the table-based database, reading a next node of the data tree, and repeating step (b) for such next node;  
(2) if not, checking whether a delete flag is set for such node, and:  
(A) if so, ignoring the node, reading a next node of the data tree, and repeating step (b) for such next node;  
(B) if not, creating a new record in the table-based database, storing any values of the node in such record, reading a next node of the data tree, and repeating step (b) for such next node.

4 A system for converting data records from a table-based database format to nodes of a

data tree format in a computer system, including:

- (a) means for creating a data tree framework by defining a root node containing a unique identifier and at least one attached container node;
- (b) means for retrieving all data records from the table-based database having an identifier field value matching the unique identifier for each attached container node;
- (c) means for matching a parent sequence number stored in a current retrieved record to a parent sequence number of a current container node;
- (d) means for attaching a descriptor node containing data from the current retrieved record as a child node of the matching container;
- (e) means for repeating steps (c) and (d) for a next retrieved record;
- and (f) means for repeating steps (b) through (e) for a next container node.

5 The system of claim 4, further including means for maintaining the number of child nodes between 3 and 5.

6 A system for converting data records from nodes of a data tree format to records of a table-based database in a computer system, including:

- (a) means for reading a first node of the data tree;
- and
- (b) means for determining if the node has a sequence identifier, and:
  - (1) if so, updating a corresponding record in the table-based database, reading a next node of the data tree, and repeating step (b) for such next node;
  - (2) if not, checking whether a delete flag is set for such node, and:
    - (A) if so, ignoring the node, reading a next node of the data tree, and repeating step (b) for such next node;
    - (B) if not, creating a new record in the table-based database, storing any values of the node in such record, reading a next node of the data tree, and repeating step (b) for such next node.

7 A computer program, stored on a computer-readable medium, for converting data records from a table-based database format to nodes of a data tree format, including instructions for causing a computer to:

- (a) create a data tree framework by defining a root node containing a unique identifier and at least one attached container node;
- (b) for each attached container node, retrieve all data records from the table-based database having an identifier field value matching the unique identifier;
- (c) match a parent sequence number stored in a current retrieved record to a parent sequence number of a current container node;
- (d) attach a descriptor node containing data from the current retrieved record as a child

node of the matching container;  
 (e) repeat steps (c) and (d) for a next retrieved record; and  
 (f) repeat steps (b) through (e) for a next container node.

8 The computer program of claim 7, further including instructions for causing the computer to maintain the number of child nodes between 3 and 5.

instructions for causing a computer to:

(a) read a first node of the data tree; and

(b) determine if the node has a sequence identifier, and:

(1) if so, update a corresponding record in the table-based database, read a next

node of the data tree, and repeat step (b) for such next node;

(2) if not, check whether a delete flag is set for such node, and:

(A) if so, ignore the node, read a next node of the data tree, and repeat step (b)

for such next node;

(B) if not, create a new record in the table-based database, store any values of the node in such record, read a next node of the

data tree, and repeat step (b)

for such next node

Identify

100

Desired Actu6

Assessment Patient Intervention ician

Direction1 @@1 18

Diagnosis

1-104 108 11-112 116

Assessment Patient Problem Outcome Intervention

----- Knowledge Bases

-----

FiGs 1

1200

Network 1--210

tz 202 1-202 1-204 --@ ----- - TT

Server I Server #M Client Station # 1 Client Statio,

Decision Decision Data Entry Data Ent,

206-@,

Support Rules Support Rules and Display and Disp)

220 Processor I Processor FInterface Control Interface Cc

208-@-,

Patient Data Patient Data Processor r Process(

Memory memori

FIGm 2

Set ...Breathing Pattern and

timal Gas Exchange

Cardiogenic Shock Adequate Cardiac Output

Relatiot

400

FIG, 3E Tablec.

rma n

Broke

Patient D,

e Struc

404

```

nt Data
Problem
Interventions
Outcomes
ProtocG
402 of
FiGa 4
Root Node 500
1
Conta@@@502
I
Descriptor1 504
Desc 504
Descriptorn [@504
FIG, 5A
Patient1D 506
Patient Rapid Scan sment Care Plan
-508
FiGs 5B
Mvi...

...Blood Blood
Pressure 1 Pressure
A
Sitting tanding Lying Down Sitting Standing
I I I I -1
I Number ber FA/um Number
FIG, 6
Data Entry 700
704 ew
@@elect Existing
Individual
706
Enter Chief Complaint
or 708
Follow Up Information
Open Individual Char-t 71 0
900 100(
750 Flagno
Assessment stic
F care Plan
Rapid Scan Help
78oo 752
-7%t
FIGa 7A
Select Patient Chart
- List Patients - Andrews, julianna Selected Patient Information
* by Name Botster. Nick Add New Patient]
Brown, James Patient I.D. 112398
Chambers, John
* by I.D. donna, Donna Date of Birth Edit Patient...

...w-F
802 804
-806 808
Enter Vital Signs Observations Precipatation F

```

Abnormal Signs Location h  
 Edit Last Mentation Relief  
 Cancel Other Character  
 Notes Cancel Time Line  
 Date and Time Close Cancel  
 Record L  
 F"Determine Pro 812  
 1  
 lpetermine Inter 814  
 816  
 Determine Outcom@es  
 FIG, 8A  
 Vital Signs  
 Position  
 Sitting...Selected Outcome  
 I IVII @Mf IV  
 FAdd @Problem  
 Notes j F!7ionale7 FRe@place 7Name  
 @;Iose  
 FIGs 9H  
 1000 gnos s  
 Labs ECG Monitor] X-ray  
 1002-1 1006-1 1010-/  
 ECG Echo F ETT  
 1004-1 1008-1 1012,1  
 FIG, 10A  
 SUBSTITUTE SHEET (RULE 26)  
 Dx Tests for Haley...  
  
 ...5 191971 08=53 New D  
 Normal  
 Test Name Value Units Min Max  
 IVI I I I I  
 Lab Test Lab Result Ot Min Max Data  
 Save  
 I IVI  
 Close  
 FIG, 10B  
 Dx Tests for Haley, Charles N  
 ILabs I ECG JECG Mo@nitor Dx @Tests  
 Sinus Rhythrn/Rate Ventricular Rhythrn...IV  
 Aortic Aneurysm  
 Election Fraction Dx Test DAtes  
 LV Akinesis  
 LV Hypertrophy  
 LV Hypokenesis  
 RV Akinesis  
 RV Hypertrophy  
 RV Hypokenesis  
 Diskenesis  
 Paricardial Effusion  
 Chest X-ray Interpretation  
 Negative  
 Enlarged Heart  
 Infiltrates  
 Pulmonary Edem-a/Congestioi

Pericardial Effusion  
 Widened Mediastinum  
 79@;Iose  
 FM 1 OE  
 SUBSTITUTE SHEET (RULE 26)  
 11-1102 ..... 1...

...S Recordp  
 e Tablespace.m  
 FiGs 1 1  
 25%  
 20% 11  
 15%10%5%  
 0%  
 2 3 4 5 6 7 8  
 Number of Child Nodes  
 FIG, 13  
 SUBSTITUTE SHEET (RULE 26)  
 1220  
 Define Root Read a node  
 Node with 1200  
 unique 1222 //@1 224  
 PatientID  
 Update existing  
 eq. 9 tablespace  
 Retrieve all ? record  
 records 202  
 matching  
 PatientID 226  
 y te  
 Match record set  
 PSNs to 1204  
 container PSNs  
 Create a new  
 Attach tablespace 228  
 descriptor node record  
 to container 206  
 with matching 1230  
 PSN  
 208  
 NO one  
 FIG6 12B  
 Continue with ...-1210  
 next container  
 FIGN 12A  
 SUBSTITUTE SHEET (RULE 26)  
 INTERNATIONAL...

...4; 705/2,3; 345/356v357

Documentation searched other than minimum documentation to the extent  
 that such documents are included in the fields searched Electronic  
 data base consulted during the international search (name of  
 data base and, where practicable, search terms used)

EAST, NPL, IEEE, ACM

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category\* Citation of document, with indication, where appropriate, of  
 the relevant passages Relevant to claim No.

A TU et al. Episodic Skeletal-Plan refinement Baesd on Temporal 1-9  
Data, Communications o fthe ACM, December 1989, Vol 32, No.

12 pages 1439-1455, the entire document  
A DELANEY ET AL. Design of a Temporal Database...

...is not considered the principle or theory underlying the invention  
to be of particular relevance  
'E' earlier document published on or after the international filing  
date X. document of particular relevance-, the claimed invention  
cannot be  
considered novel or cannot be considered to involve an inventive step  
'L' document which may...

15/3,K/22 (Item 13 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00579114 \*\*Image available\*\*  
PROTOCOL BUILDING TOOL FOR MEDICAL DECISION SUPPORT EXPERT SYSTEM  
OUTIL DE CONSTRUCTION DE PROTOCOLE POUR SYSTEME EXPERT MEDICAL D'AIDE A LA  
DECISION

Patent Applicant/Assignee:

POINT LOMA INDUSTRIES INC, Suite 495, 9820 Willow Creek Road, San Diego,  
CA 92121, US, US (Residence), US (Nationality)

Inventor(s):

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ANDRADE Ernesto P, 1872 Bexley Landing, San Jose, CA 95132, US,  
CHRISTENSEN James L, 1269 Via Conejo, Escondido, CA 92029, US,  
HUDDLESTON Donna R, 5644 Dehesa Road, El Cajon, CA 92019, US,  
SWEENEY Dennis P, 7155 Celome Court, San Diego, CA 92129, US,

Legal Representative:

HAGLER James T (agent), Fish & Richardson P.C., 4350 La Jolla Village  
Drive, Suite 500, San Diego, CA 92122, US,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200042487 A2-A3 20000720 (WO 0042487)  
Application: WO 2000US907 20000113 (PCT/WO US0000907)  
Priority Application: US 99115914 19990114; US 99115948 19990114; US  
2000481718 20000112; US 2000481953 20000112; US 2000482972 20000112

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE  
GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK  
MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU  
ZA ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 14629

Fulltext Availability:

Detailed Description  
Claims

Claim

... IQqm 'E I WIETO JO umiBaidnindwoo oql -t7l  
L0600/OOSf1/JL3d LStZt1/00 OM  
en fy  
Assessment Patient Desired Intervention Actual  
Problems Outcomes Outcome  
Patient  
Data  
0  
c  
Direction/  
j0q Diaposis  
@/j I x 116  
Assessment Patient Problem Outcom; Interventiofi Evaluation  
Knowledge Bases  
Figure 1. Care Giving Process  
Network  
er Server #M Client Station Station  
:Decision: SuDecision [-Data, Entry  
.up 'o and Display  
p:  
0:  
r:  
t u  
ZAV @Support Rules] pport Rules]  
interface Interface  
Control  
Patient  
=at& ir  
jProcessor]  
Mem2ry.  
hemati lock Diagram  
Figure 2. Data Processing System SC C  
Set of Rules  
rotocol @- Y  
individual Hierarchical Problem, Intervention,  
History and Symptom & outcome Trees Problem,  
Current State Stru ure n Intervention  
Trans ator & outcome  
an En&c Sets  
49  
Electronic  
Record  
Figure 3AFunctional Block Diagram  
Relational  
Tables 7  
rmat Pat ent  
Broker Data  
Patient Data  
Tree Structure  
a en ata.  
Probl



Interventions  
 Outcomes  
 ro  
 oo@  
 Protocols  
 Vd 2L Rule Server Knowledge  
 Base  
 Figure 4. Core Computational Modules of the Invention  
 e...

...and Optimal Gas  
 Exchange \*  
 expiratory Rate <= 30  
 hortness of breath jEffective Breathing Pattern and Optimal Gas  
 Exchange  
 Cardiogenic Shock Adequate Cardiac Output  
 7l=/  
 Roo t Node  
 Container  
 4l,  
 Descript:Or Di--@  
 Descriptor 2  
 Descriptor n  
 Fig,, 5  
 ,4 Ilierarchical Structure of Patient Data  
 pitientm J  
 Rapid Scan @men  
 Fip.Fb, Reprisesentative Psticnt.Trei Root Node and Major Containers  
 Now A Ust Is a gm of vNew  
 bod  
 Pro""  
 OcIwn  
 Fig. 6 Vitals Tree Structure  
 ata entry  
 7a r I -7 a Z  
 a new individual select existing  
 -7 individual  
 enter chief complaint  
 or  
 follow up information  
 - I  
 IfeO open individual chart C9,  
 patient assessment Tiagnostic test-SI  
 F - - 7 /2,  
 ,  
 care plan help  
 L. 7  
 Figure..7AI?ata Entry Flowchart  
 ust...

...enter v ta s gns bservations prec patation factors  
 abnormal signs location recent problems  
 edit last mentation relief cancel  
 cancel other character close  
 otes cancel time line  
 date and time Flose cancel

```

record close
determine proble@
ms@
determine
determine
Figure 8ARapid Scan Flowchart
M. Fro,
ftht Pulse
siltiv SBP / DBP Rate- RR...Adequate Cardiac Output
Heart Rai@ )a 50
A
T'Irio outmw
Slatut
.IN
@;g jr
Zr 4 ....;"m
A::
/28
diagnostic tests
Labs ECG monit ray
% APO 6@ 40@ 14011
F Echo TT
Figure I'AP iagnostic Test Flowchart
lira =Zrln: @'ITnrq-,v
im
T.
7.55:
Lab did@r IL...90
entry point eo@
Moir
problem interventi n outcome
parent module e
enter new rule select rule from
existing list
I CtIl /V
enter rule
information lltllt#@
no inue
build indicat

0 r
Figure I 14Rule Selection Flowchart
/28
Mairs WbAnfellitill, (P L" 0 Q
I ntervention
Outcome
Mol,
/28
3...

```

15/3,K/23 (Item 14 from file: 349)  
 DIALOG(R)File 349:PCT FULLTEXT  
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00578240

EXPERT SYSTEM FOR REAL-TIME DECISION SUPPORT  
SYSTEME EXPERT D'AIDE A LA DECISION EN TEMPS REEL

Patent Applicant/Assignee:

POINT LOMA INDUSTRIES INC,

Inventor(s):

BUCHANAN Leonard F,  
ANDRADE Ernesto P,  
CHRISTENSEN James L,  
HUDDLESTON Donna R,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200041613 A2 20000720 (WO 0041613)

Application: WO 2000US908 20000113 (PCT/WO US0000908)

Priority Application: US 99115948 19990114; US 99115914 19990114

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE  
GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK  
MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU  
ZA ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE  
CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN  
GW ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 12651

Fulltext Availability:

Detailed Description

Claims

Claim

... categorizations as selections from pre-defined lists.

21 The computer program of claim 14, further including instructions for causing the computer to:

- (a) receive input data about a patient's health status;
- (b) analyze the input data in a computer against an outcome evaluation healthcare knowledge base and associate an outcome evaluation based on the analysis of the input data;
- (c) compare the outcome evaluation to the desired outcome to determine a patient's intervention progress.

22 The computer program of claim 14, further including instructions for causing the computer to collect and process patient data from a plurality of sites and consolidate from such patient data information indicative of any one of. (a) a trend analysis of quality of care metrics, for quality of care visibility; (b) evidence of a disease or...

...for cost visibility.

23 The computer program of claim 14, including further instructions for causing the computer to provide a training mode wherein the input data comprises constructed patient scenarios rather than data

about an actual patient being treated, and the instructions:

(a) require a student operator to determine a correct answer at each step of an analysis process before the student operator is allowed to proceed to a next step in the analysis process;  
(b) provide rationale and help screens for interactive learning by the student operator; (c) record student operator attempts and success rates at providing such correct...

...provide a test phase during which a testing student operator's knowledge is tested.

ent

ssessmen Patient ntervent on Actual

Pat ent Problems Utcornes Outcom

Data -Z@

0 0 1 1

ys c an

Direction/

104 Diagnosis

116

Assessment Patient Problem Outcomi InterventioA Evaluation

- - - - -

----- - -Knowledge Bases

Figure 1. Care Giving Process

Z"q 0

Network

Server Sen Client Stat on Client Station #N

Decision Dec s on Data Entry I Data Entry

Rules Support Rules and Display

Support

-rface I-Interface

Inte

ontrol

[@@fl Control

EpEtient Data @ @E

emory

@Ory

Figure 2. Data Processing System Schematic Block Diagram

Set of Rules

I '@@ 76)

Protocol '@Y/ C)

Individual Hierarchical Problem, Intervention,

History and Symptom & Outcome Trees Problem,

Current State...

...feren Intervention

a Eng s a & Outcome

Sets 'T/Y

2,

Electronic

Records

Figure Al'unctional Block Diagram

Relational

Tables el@ 6e

rmation atient

Broker Data  
atient Data  
Tree Structure  
at ent ata  
Prob]l  
Interventions  
Outcomes  
Protocols  
nowledge

2 Rule Base

Figure 4. Core Computational Modules of the Invention

ac2

2

e e t...

...Pattern and OP timal Gas

Exchange

spiratory Rate <= 30

Shortness of breath jEffective Breathing Pattern and Optimal Gas

Exchange

ardiogenic Shock dequate Cardiac Output

Root Node

Container

Descriptor 1

es p

Desc;ptor 7n

Fig1, 5-.4 Hierarchical Structure of Paticnt Data

Pa Rapid Scan en Care Plan LDx Test/Monitors

Fip Repre'sentative Patient Tree' Root Node and Major

Containers

Note: A List is a set of Vitals

swo

I I

Sitting to to LYN

00"

r

Fig. 6 Vitals Tree Structure

/18

ata entry

7a r -7

a new individu

;F] select existing

individual

enter emo c ata

enter cc complaint 7C57

or

information

7142

I VO open individual ch r

assessment diagnostic tests

7/2.

help

rapid scan

L 7

Figure..7AI?ata Entry Flowchart

M ",7177, I 7s...factors  
I  
enter v tal signs observat on prec patat on factors  
abnormal si location recent problems  
editlast mentation relief cancel  
other character close  
ancel time line  
d time close cancel  
close  
Edetermine probleE@@ IF 2@  
determine inte  
determine o@@  
Figure 8  
,4Rapid Scan Flowchart  
Plrq 7lm  
Puile  
S kiv 58P DBP SI; OLtcww ...J.  
pv,  
-@U  
Z'  
tin. P.  
.WI  
diagnostic tes  
I  
Labs ECG monitor X-ray  
/o@  
ECG Echo E77  
Figure I 0  
,,@Piagnostic Test Flowchart  
LAbs jCG ECG Mor@@Jw: DmwTo6--"f"  
4 Lab T 0 w  
55-00  
7...

15/3,K/24 (Item 15 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00536250 \*\*Image available\*\*  
A COMPUTER SYSTEM AND PROCESS FOR EXPLAINING BEHAVIOR OF A MODEL THAT MAPS  
INPUT DATA TO OUTPUT DATA  
SYSTEME ET PROCEDE INFORMATIQUES SERVANT A EXPLIQUER LE COMPORTEMENT D'UN  
MODELE FAISANT CORRESPONDRE DES DONNEES D'ENTREE A DES DONNEES DE  
SORTIE  
Patent Applicant/Assignee:  
TORRENT SYSTEMS INC,  
Inventor(s):  
PASSERA Anthony,  
Patent and Priority Information (Country, Number, Date):  
Patent: WO 9967602 A1 19991229  
Application: WO 99US14076 19990622 (PCT/WO US9914076)  
Priority Application: US 98102349 19980622  
Designated States:  
(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE  
GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK  
MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU  
ZA ZW GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH  
CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW  
ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 4331

Fulltext Availability:

Detailed Description

Detailed Description

... has been reached. By recursively splitting each subspace, each split defined by the data splitting module 16 may be represented by a decision tree. Each node of the decision tree stores an indication of the dimension which is most salient for the input data and the threshold used by the node for splitting the input data into subspaces. The decision tree thus hierarchically defines, for each subspace of the input space, the dimension and threshold used...subspaces also may be performed in parallel and in a pipelined manner, as shown in Fig. 3. In particular, the sensitivity analysis module 12 and data splitting module 16 of Fig. 1 may be considered a data splitter 30 as shown in Fig. 3. The model 11 is not shown in this figure, because it may be considered to be used in a preprocessing step to generate the partial derivatives from which sensitivity measures are computed. A data splitter 30 receives input data 31 and generates output subspaces 32 and 33. Additional data splitters 34 and 36 may be provided to operate in parallel on the output subspaces 32 and 33 to provide additional subspaces.

A more detailed...

...selected based on the sensitivity measures as indicated in step 50. A threshold for the selected dimension is determined in step 52 from the input data set. For each input datum, as indicated in step 54, the value of the selected dimension is compared to the determined threshold in step 56...

...be presented to a user for example by a computer display or printout in a number of formats. By representing the description using a decision tree, each node of the tree may be described using a rule in a first order predicate calculus. The user may traverse the tree and interactively expand or contract each node to view the description for each node of the tree.

A general purpose computer system may be used to implementing the system shown above using a computer program. Such a computer system typically includes a main unit connected to both an output device which displays information to a user and an input device which receives input from a user. The main unit generally includes a processor connected to a memory system...

...interconnection mechanism.

It should be understood that one or more output devices may be connected

to the computer system. Example output devices include a cathode ray tube (CRT) display, liquid crystal displays (LCD), printers, communication devices such as a modem, and audio output. It should also be understood that one or...

...input devices may be connected to the computer system. Example input devices include a keyboard, keypad, track ball, mouse, pen and tablet, communication device, and data input devices such as sensors. It should be understood the invention is not limited to the particular input or output devices used in combination with...

...operating system, of which WindowsNT, Linux, UNIX, System 7, DOS, VMS and OS8 are examples, which controls the execution of other computer programs and provides scheduling, debugging, input/output control, accounting, compilation, storage assignment, data management and memory management, and communication control and related services. The processor and operating system define...

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DIALOG(R)File 349:PCT FULLTEXT  
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00520729 \*\*Image available\*\*

METHOD AND APPARATUS FOR THREE-DIMENSIONAL CHARACTER ANIMATION  
PROCEDE ET APPAREIL D'ANIMATION DE CARACTERES EN TROIS DIMENSIONS

Patent Applicant/Assignee:

AVID TECHNOLOGY INC,

Inventor(s):

MILLER Paul,

PAUL Brian,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9952081 A1 19991014

Application: WO 99US7136 19990331 (PCT/WO US9907136)

Priority Application: US 9854763 19980403

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AU CA JP AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 7300

Fulltext Availability:

Detailed Description

Detailed Description

... called an operating system, of which WindowsNT, IRIX, UNIX, DOS, VMS and OS8 are examples, which controls the execution of other computer programs and provides scheduling, debugging, input/output control, accounting, compilation, storage assignment, data management and memory management, and communication control and related services. The processor and operating system defines...0), by Segal and Akeley, all of which are hereby incorporated by reference in their entirety.

Referring now to Fig. 3, in one embodiment a data structure which represents a titling effect to be applied to video is a scene graph. The



implementation may be object oriented.

The scene graph object may be implemented as a tree or other structure such as a list, array, etc. An example of such a tree is shown at 50 in Fig. 3. The tree has a root node 52. The root node has a collection of children nodes which may be, for example, a text box 54 or shape 56 or page deck 55. The root node also has associated with it a collection of property stacks which will be described in more detail below.

A shape object is any arbitrary closed two-dimensional shape, such as a rectangle, circle or triangle. Accordingly, a shape node 56 is represented by data defining the shape, such as a Bdzier.

A text box object 54 is defined as a collection of characters, which may be representing using any...

15/3,K/26 (Item 17 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00520728 \*\*Image available\*\*  
A TIME INHERITANCE SCENE GRAPH FOR REPRESENTATION OF MEDIA CONTENT  
GRAPHE TEMPOREL DE SCENE D'HERITAGE POUR LA REPRESENTATION DU CONTENU DES  
SUPPORTS

Patent Applicant/Assignee:

SYNAPIX INC,

Inventor(s):

FRENCH Michael T,

ROBOTHAM John S,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9952080 A1 19991014

Application: WO 99US6639 19990326 (PCT/WO US9906639)

Priority Application: US 9854603 19980403

Designated States:

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AU CA CN JP SG AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 14065

Fulltext Availability:

Detailed Description

Detailed Description

... leaves

output traversals propagate recalculated data,  
up toward the root.

c. Renderers and Domains

A renderer class defines an abstract Application Programming Interface (API) for nodes to call during traversal, and node actions are dispatched to renderer implementations. Caches are part of the renderer interface. By abstracting actions and caches, every node implementation is made renderer independent. Renderers

must maintain a cache factory to construct the correct cache type.

Traversals occur within domains. When a render...

...the required data. The type of the new renderer must match the new domain, but the specific instanced renderer may be supplied by the boundary node. These are the two choices for domain processing.

schedule domains to be traversed, from leaf domain to root domain, ensuring all data is made available to cached nodes; or have one universal traversal which chains out of scene-level caches through callbacks, and into new domain traversals.

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-27

There...

...graph. For example, loading an image into a material seems like a trivial domain, which is better serviced by a callback from the cached material node. A more complex load/process/material pipeline can be promoted to full domain status.

The domains are

- 2D imaging and compositing
- 3D segmentation and compositing
- 3D scenes
- 2D shader trees and texturing

Each traversal has one renderer registered in its traversal context for each domain. This allows a large set of possible renderer functions to be partitioned, with a mix and match selection. There is a close correspondence between data types within the graph 40, the allowable traversals, the set of renderers for each traversal, and the operator nodes 50 which can be processed. These are the principal abstract classes together with some possible output rendering systems.

SUBSTITUTE SHEET (RULE 26)

-28

D a 4C a Domain Rende.ers

Temporal Timeline SW (java UI)

SW, VSA hw, OpenGL, SGI

2D imaging IL/IFL, Java2D

Image

3D imaging SW, OpenGL

optimizer/Cosmol

OpenGL, Java3D

Renderable 3D scene mental ray, RenderMan,

Softimage, Alias

3D sound SW, Java3D

Audible

IAudio SGI AL, MIDI, JavaSound

The highest level type in the system is Temporal, which relates to the handling of scene time within the hierarchy. Every operator and every data structure in the graph can respond to a time-based traversal of the graph.

The time domain includes the whole graph. The time aspects of the graph are rendered to the timeline.

Image renderables include 2D images and 2D geometric markup. 2D image renderers can process 3D images, but they will only get the correct result when the scene is strictly layered, which may require extra 2D work. 3D scenes can...

15/3,K/27 (Item 18 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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00401863 \*\*Image available\*\*  
APPARATUS AND METHOD FOR MANAGING AND DISTRIBUTING DESIGN AND MANUFACTURING INFORMATION THROUGHOUT A SHEET METAL PRODUCTION FACILITY  
APPAREIL ET METHODE CORRESPONDANTE PERMETTANT DE GERER ET DE REPARTIR UNE INFORMATION RELATIVE A LA CONCEPTION ET A LA FABRICATION DANS UNE INSTALLATION DE PRODUCTION DE TOLES

Patent Applicant/Assignee:

AMADA METRECS CO LTD,  
AMADASOFT AMERICA INC,

Inventor(s):

HAZAMA Kensuke,  
KASK Kalev,  
SAKAI Satoshi,  
SCHWALB Moshe Edward,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9742607 A2 19971113  
Application: WO 97US7473 19970506 (PCT/WO US9707473)  
Priority Application: US 9616958 19960506; US 96700671 19960731

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 149194

Fulltext Availability:

Detailed Description

Detailed Description

... through a cabinet or file of old paper tapes or magnetic disks.

Despite such advancements, there is still a need to improve the organization and flow of design and manufacturing information throughout the factory environment. For example, conventional manufacturing systems do not logically associate both critical design and manufacturing information associated with each customer's order so that it... of entities define inner loops and

boundaries of the part.

In addition, the face detecting system may further comprise a system for generating a loop tree based on the outward loop defined by the initial linked list of entities and the inner loops 0 defined by the additional linked list of entities. Further, the face detecting system may detect the faces of the part based on the loop tree and the sequence of boundaries defined by the initial linked list entities and the additional linked list of entities.

The bendline identification system of the...

15/3,K/28 (Item 19 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
(c) 2010 WIPO/Thomson. All rts. reserv.

00155298  
HIGH PERFORMANCE GRAPHICS WORKSTATION  
POSTE DE TRAVAIL GRAPHIQUE A HAUTE PERFORMANCE  
Patent Applicant/Assignee:

DIGITAL EQUIPMENT CORPORATION,

Inventor(s):

DOYLE Peter Lawrence,  
ELLENBERGER John Philipp,  
JONES Ellis Olivier,  
CARVER David C,  
DIPIRRO Steven D,  
GEROVAC Branko J,  
ARMSTRONG William Paul,  
GIBSON Ellen Sarah,  
SHAPIRO Raymond Elliott,  
RUSHFORTH Kevin C,  
ROACH William C,

Patent and Priority Information (Country, Number, Date):

Patent: WO 8901664 A1 19890223

Application: WO 88US2727 19880812 (PCT/WO US8802727)

Priority Application: US 8781 19870813

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AT BE CH DE FR GB IT JP LU NL SE

Publication Language: English

Fulltext Word Count: 25542

Fulltext Availability:

Detailed Description

Detailed Description

... represent the display device and the processing capability of the graphics system required to process the output data or d splay on a catho e ray tube. For instance, with respect to color aloner eight bits of information per pixel may be required to store information on the red, green and...stored in a structure memory component in the graphics subsystem\* ok

The three-dimensional graphics data structures are each implemented as a hierarchical graphics data node structure in the structure memory. For a thorough discussion of the principal concepts of interactive .computer graphics as generally employed by the system of the invention, reference should be made to Fundamentals of Interactive Computer Gra-phics by J.D. Foley and A.

Van Dam (Addison-Wesley 1982).

Each node is defined as a fundamental memory unit to contain graphics data or commands relating to the primitives, transformationst attributes and so.on of the graphics structure being built pursuant to a specific application program residing in...

...asynchronously operational structure walker in the graphics subsystem traverses a special control structure stored in the structure memory on a continuing basis to read and process requests for traversal of the nodes of the graphics structures and to send the data and command information contained in the nodes down a graphics pipeline for processing, manipulation and display by the graphics processing components of the graphics subsystem.  
Pursuant to an important feature of the...

...function is partitioned among the host and graphics subsystem components to accept requests for graphics structure traversals made by competing application programs, and to subsequently schedule and In accordance with known concepts of interactive computer graphicsf the invention makes use of a windowing system to provide a conversion from the world coordinate system of the user to appropriate geometric coordinates suitable for the physical display device of the workstation, i.e. the cathode ray tube. A window is a rectangular array of pixels which may be partially or wholly visible on the display device depending upon the size of the window relative to the physical dimensions of the display screen. Windows are also in a hierarchy with a "parent" window and sub-windows or "children".

Windows may be resized and sub-windows used for clipping by the parent when a sub...

...X Window System developed under the auspices of the Massachusetts Institute of Technology as a royalty free industry standard.

5 Pursuant to the invention, the data generated by the windowing system to create and define the window coordinates and attributes is uniquely identified by the traversal control system for correlation to the hierarchical graphics data node structure of the object to be displayed within the rectangular array of the

window.

Accordingly, the asynchronous traversal by the structure walker is able to...

...Window

System which was developed primarily for use in two dimensional, bit mapped graphics systems. The window identification data for correlation to the three dimensional node memory structures systematically merges a three@dimensional functionality into the advantageous x window System.

Pursuant to another significant feature of the invention, a separate two...

?

## IV. Text Search Results from Dialog

### A. Abstract NPL and Foreign Patent Databases

? show files;ds

File 350:Derwent WPIX 1963-2009/UD=201001

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File 344:Chinese Patents Abs Jan 1985-2006/Jan

(c) 2006 European Patent Office

File 347:JAPIO Dec 1976-2009/Sep(Updated 091230)

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File 371:French Patents 1961-2002/BOPI 200209

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File 2:INSPEC 1898-2009/Dec W2

(c) 2009 The IET

File 35:Dissertation Abs Online 1861-2009/Nov

(c) 2009 ProQuest Info&Learning

File 65:Inside Conferences 1993-2010/Jan 08

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File 99:Wilson Appl. Sci & Tech Abs 1983-2009/Nov

(c) 2009 The HW Wilson Co.

File 256:TecTrends 1982-2010/Jan W2

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File 474:New York Times Abs 1969-2010/Jan 08

(c) 2010 The New York Times

File 475:Wall Street Journal Abs 1973-2010/Jan 08

(c) 2010 The New York Times

File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13

(c) 2002 Gale/Cengage

File 23:CSA Technology Research Database 1963-2009/Nov

(c) 2009 CSA.

File 56:Computer and Information Systems Abstracts 1966-2009/Nov

(c) 2009 CSA.

Set	Items	Description
S1	25798	(INFORMATION OR DATA OR CONTEXT OR CONTEXUAL OR CONTENT OR PROCESS OR THREAD)(2S)(PYRAMID? OR POLYHEDRON OR POLYGONAL)
S2	60073	(INFORMATION OR DATA OR CONTEXT OR CONTEXUAL OR CONTENT OR PROCESS OR THREAD)(2S)(HIERARCHY OR TIER)
S3	85526	S1 OR S2
S4	333105	SCHEDULE OR SCHEDULING OR SCHEDULES OR TIMELINE? ? OR TIME- ( )LINE? ?
S5	1758010	FLOW( )LINE? ? OR FLOWLINE? ? OR RAY? ? OR LINE( )SEGMENT? ?
S6	598315	NODE OR NODES OR NODAL OR POINT? ?(3N)(CONNECT? OR INTERSE- CTION)
S7	319	LINKED( )DATA( )STRUCTURE? ?
S8	90661	(INFORMATION OR DATA OR CONTEXT OR CONTEXUAL OR CONTENT OR PROCESS OR THREAD)(2S)(TREE)
S9	1981	(INFORMATION OR DATA OR CONTEXT OR CONTEXUAL OR CONTENT OR PROCESS OR THREAD)(2S)(QUADTREE)
S10	12372	MILESTONE? ? OR MILE( )STONE? ?
S11	173783	S3 OR S8 OR S9
S12	344762	S4 OR S10

S13 5 S5 AND (S6 OR S7) AND S11 AND S12  
 S14 4 RD (unique items)  
 ? t14/3,k/all

14/3,K/1 (Item 1 from file: 350)  
 DIALOG(R)File 350:Derwent WPIX  
 (c) 2010 Thomson Reuters. All rts. reserv.

0018248824 - Drawing available  
 WPI ACC NO: 2008-L69157/200868  
 Related WPI Acc No: 2002-148087; 2007-220911; 2007-389780; 2007-797965;  
 2008-C17928; 2008-C19216; 2008-G32779; 2008-J27660; 2009-H14317;  
 2009-J99468; 2009-N47650; 2009-P83499

Image rendering method for digital computing system, involves utilizing  
 termination criterion and memory scheduling heuristic to enable  
 construction of efficient ray tracing acceleration data  
 tree structure in given fixed memory block

Patent Assignee: KELLER A (KELL-I); WAECHTER C (WAEC-I)

Inventor: KELLER A; WAECHTER C

Patent Family (1 patents, 1 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
US 20080231633	A1	20080925	US 2000212286	P	20000619	200868 B
			US 2001265934	P	20010201	
			US 2001884861	A	20010619	
			US 2002299574	A	20021119	
			US 2005693231	P	20050623	
			US 2006793063	P	20060419	
			US 2006474517	A	20060623	
			US 2007886197	P	20070123	
			US 2007910940	P	20070410	
			US 2007737424	A	20070419	
			US 200818733	A	20080123	

Priority Applications (no., kind, date): US 2000212286 P 20000619; US  
 2001265934 P 20010201; US 2001884861 A 20010619; US 2002299574 A  
 20021119; US 2005693231 P 20050623; US 2006793063 P 20060419; US  
 2006474517 A 20060623; US 2007886197 P 20070123; US 2007910940 P  
 20070410; US 2007737424 A 20070419; US 200818733 A 20080123

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20080231633	A1	EN	115	51	Related to Provisional US 2000212286
					Related to Provisional US 2001265934
					C-I-P of application US 2001884861
					C-I-P of application US 2002299574
					Related to Provisional US 2005693231
					Related to Provisional US 2006793063
					C-I-P of application US 2006474517
					Related to Provisional US 2007886197
					Related to Provisional US 2007910940
					C-I-P of application US 2007737424
					C-I-P of patent US 7184042
					C-I-P of patent US 7227547

Image rendering method for digital computing system, involves utilizing



termination criterion and memory scheduling heuristic to enable construction of efficient ray tracing acceleration data tree structure in given fixed memory block

Alerting Abstract ...NOVELTY - The method involves utilizing a termination criterion and memory scheduling heuristic to enable construction of an efficient ray tracing acceleration data tree structure in a given fixed memory block. A contiguous portion of a memory is transmitted along with a value representative of the size of the contiguous portion of the memory. A leaf node is constructed, if two reference lists plus the size of a tree node do not fit into the memory block. Memory consumption of new sub-trees is predicted.... DESCRIPTION OF DRAWINGS - The drawing shows a schematic representation of an image from animations and interactive applications generated using ray tracing techniques...

Title Terms.../Index Terms/Additional Words: SCHEDULE; ...

...RAY; ...

...DATA; TREE;

Original Publication Data by Authority

Argentina

Assignee name & address:

Original Abstracts:

...computer program code (software) products for terminating spatial partition hierarchies and other hierarchies by a priori bounding, thereby to provide, among other aspects, more efficient ray tracing in computer graphics systems.

Claims:

...perceptible display of a scene in accordance with pixel values generated by the computer graphics system, (2) the computer graphics system is operable to construct ray tracing data tree structures in memory, and (3) the constructing of tree structures includes any of classification and sorting, the improvement comprising: utilizing a termination criterion and memory scheduling heuristic to enable construction of an efficient ray tracing acceleration data tree structure in a given, a priori fixed memory block, the termination criterion and memory scheduling heuristic comprising: transmitting, for use in constructing the acceleration data tree structure, a contiguous portion of memory along with a value representative of the size of the contiguous portion of memory, and instead of terminating the hierarchy by controlling a maximum depth of the tree, constructing a leaf node, if two reference lists resulting from a classification step plus the size of a tree node do not fit into the given memory block; and predicting the memory consumption of the two new sub-trees in the sorting and accordingly distributing the available memory to the left and right children when continuing recursively, the predicting comprising computing a prediction pepsilon[0, 1], which schedules a fraction of memory scheduled for the left child, the remainder of the memory being scheduled for the right child, such that depth is implicitly controlled by the scheduled memory, and the scheduling allows local adaptation of depth.

14/3,K/2 (Item 1 from file: 2)  
DIALOG(R)File 2:INSPEC  
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11883806

Title: Dependency graph approach to load balancing distributed volume  
visualization

Authors(s): Frank, S.; Kaufman, A.

Author Affiliation: Dept. of Comput. Sci., Stony Brook Univ., Stony Brook,  
NY, USA

Journal: Visual Computer, vol.25, no.4, pp.325-37

Publisher: Springer Berlin

Country of Publication: Germany

Publication Date: April 2009

ISSN: 0178-2789

CODEN: VICOE5

Item Identifier (DOI): <http://dx.doi.org/10.1007/s00371-008-0295-z>

Language: English

Subfile(s): C (Computing & Control Engineering)

INSPEC Update Issue: 2009-040

Copyright: 2009, The Institution of Engineering and Technology

Abstract: We present a framework that uses data dependency information to automate load balanced volume distribution and ray-task scheduling for parallel visualization of massive volumes. This dependency graph approach improves load balancing for both ray casting and ray tracing. The main bottlenecks in distributed volume rendering involve moving data across the network and loading memory into rendering hardware. Our load balancing solution combines static network distribution with dynamic ray-task scheduling. At the core of the dependency graph approach are the flex-block tree, introduced in this paper, and the cell-tree. The flex-block tree is similar to a kd-tree except that leaf nodes are cells containing a combination of empty space and tightly cropped subvolumes, or flex-blocks. A main contribution of this paper is the moving walls algorithm, which uses dynamic programming to create a flex-block partition. We show results for optimizing distributed ray cast rendering using a time cost function. We compare data distribution using the moving walls algorithm, with distribution using a recursive solution, and with a grid combined with a local kd-tree partition on each render-node.

Descriptors: data visualisation; dynamic programming; graph theory;  
ray tracing; resource allocation; scheduling; trees  
(mathematics)

Identifiers: dependency graph approach; load balancing; distributed volume  
visualization; data dependency information; load balanced volume  
distribution automation; parallel visualization; ray casting;  
ray tracing; distributed volume rendering; static network  
distribution; dynamic ray-task scheduling; flex-block tree;  
cell-tree; moving walls algorithm; dynamic programming; local kd-tree  
partition

14/3,K/3 (Item 2 from file: 2)  
DIALOG(R)File 2:INSPEC  
(c) 2009 The IET. All rts. reserv.

07354092

Title: Optimal processor allocation for sort-last compositing under  
BSP-tree ordering  
Authors(s): Ramakrishnan, C.R.; Silva, C.T.  
Author Affiliation: Dept. of Comput. Sci., State Univ. of New York, Stony  
Brook, NY, USA  
Journal: Proceedings of the SPIE - The International Society for Optical  
Engineering, vol.3643, pp.182-92  
Publisher: SPIE-Int. Soc. Opt. Eng  
Country of Publication: USA  
Publication Date: 1999  
Conference Title: Visual Data Exploration and Analysis VI  
Conference Date: 27-28 Jan. 1999  
Conference Location: San Jose, CA, USA  
Conference Sponsor: SPIE  
ISSN: 0277-786X  
SICI: 0277-786X(1999)3643L:182:OPAS;1-D  
CODEN: PSISDG  
U.S. Copyright Clearance Center Code: 0277-786X/99/\$10.00  
Language: English  
Subfile(s): C (Computing & Control Engineering)  
INSPEC Update Issue: 1999-037  
Copyright: 1999, IEE

Abstract: ...to perform user-controlled image composition. Our  
computational model is based on organizing rendering as well as  
compositing processors on a BSP-tree, whose internal nodes we call  
the compositing tree. Many known rendering algorithms, such as  
volumetric ray casting and polygon rendering can be easily  
parallelized based on the structure of the BSP-tree. In such a  
framework, it is paramount to minimize...

Descriptors: parallel algorithms; processor scheduling; rendering  
(computer graphics); resource allocation; tree data  
structures

Identifiers: ...last compositing; BSP-tree ordering; parallel rendering  
model; specialized pools; scan-line rendering algorithm parallelisation;  
compositing back-end; user-controlled image composition; computational  
mode; internal nodes; volumetric ray casting; polygon  
rendering; rendering algorithms; static processor resource allocation;  
optimal algorithm; communication

14/3,K/4 (Item 1 from file: 23)  
DIALOG(R)File 23:CSA Technology Research Database  
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0012106541 IP ACCESSION NO: 20091002893; 200905-34-0042056  
Out-of-Core and Dynamic Programming for Data Distribution on a Volume  
Visualization Cluster

Frank, S; Kaufman, A

Department of Computer Science, Stony Brook University, Stony Brook, NY,  
USA

Computer Graphics Forum, v 28, n 1, p 141-153, Mar. 2009  
PUBLICATION DATE: 2009

PUBLISHER: Blackwell Science Ltd, Osney Mead, Oxford, OX2 0EL  
COUNTRY OF PUBLICATION: UK  
PUBLISHER URL:  
[http://www3.interscience.wiley.com/journal/121537584/abstract;](http://www3.interscience.wiley.com/journal/121537584/abstract)  
<http://www.blackwell-science.com/eca/>

DOCUMENT TYPE: Journal Article  
RECORD TYPE: Abstract  
LANGUAGE: English  
ISSN: 0167-7055  
ELECTRONIC ISSN: 1467-8659  
FILE SEGMENT: ANTE: Abstracts in New Technologies and Engineering; Computer  
& Information Systems Abstracts

ABSTRACT:

Ray directed volume-rendering algorithms are well suited for parallel implementation in a distributed cluster environment. For distributed ray casting, the scene must be partitioned between nodes for good load balancing, and a strict view-dependent priority order is required for image composition. In this paper, we define the load balanced network distribution (LBND) problem and map it to the NP-complete precedence constrained job-shop scheduling problem. We introduce a kd-tree solution and a dynamic programming solution. To process a massive data set, either a parallel or an out-of-core approach is required. Parallel preprocessing is performed by render nodes on data, which are allocated using a static data structure. Volumetric data sets often contain a large portion of voxels that will never be rendered, or empty space. Parallel preprocessing fails to take advantage of this. Our slab-projection slice, introduced in this paper, tracks empty space across consecutive slices of data to reduce the amount of data distributed and rendered. It is used to facilitate out-of-core bricking and kd-tree partitioning. Load balancing using each of our approaches is compared with traditional methods using several segmented regions of the Visible Korean data set. Submitted January 2008 Revised August 2008 Accepted August 2008.

DESCRIPTORS: Preprocessing; Clusters; Load balancing (computing); Load balancing; Images; Dynamic programming; Balancing; Data sets; Scheduling; Stress concentration; Algorithms; Partitioning; Networks; Visualization; Constraints; Priorities; Data structures

## V. Dialog DialIndex Search

? show files;ds

File 1:ERIC 1965-2010/Dec  
(c) format only 2010 Dialog

File 9:Business & Industry(R) Jul/1994-2010/Jan 07  
(c) 2010 Gale/Cengage

File 13:BAMP 2010/Jan 07  
(c) 2010 Gale/Cengage

File 15:ABI/Inform(R) 1971-2010/Jan 07  
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File 16:Gale Group PROMT(R) 1990-2010/Jan 08  
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File 20:Dialog Global Reporter 1997-2010/Jan 06  
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File 47:Gale Group Magazine DB(TM) 1959-2010/Dec 21  
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(c) 2010 Gale/Cengage

File 80:TGG Aerospace/Def.Mkts(R) 1982-2010/Dec 07  
(c) 2010 Gale/Cengage

File 88:Gale Group Business A.R.T.S. 1976-2010/Jan 08  
(c) 2010 Gale/Cengage

File 148:Gale Group Trade & Industry DB 1976-2010/Jan 08  
(c) 2010 Gale/Cengage

File 149:TGG Health&Wellness DB(SM) 1976-2009/Nov W3  
(c) 2009 Gale/Cengage

File 211:Gale Group Newsearch(TM) 2010/Jan 08  
(c) 2010 Gale/Cengage

File 258:AP News Jul 2000-2010/Jan 08  
(c) 2010 Associated Press

File 275:Gale Group Computer DB(TM) 1983-2010/Dec 03  
(c) 2010 Gale/Cengage

File 340:CLAIMS(R)/US Patent 1950-09/Jan 07  
(c) 2010 IFI/CLAIMS(R)

File 345:Inpadoc/Fam.& Legal Stat 1968-2009/UD=200952  
(c) 2010 EPO

File 348:EUROPEAN PATENTS 1978-201001  
(c) 2010 European Patent Office

File 349:PCT FULLTEXT 1979-2009/UB=20091231|UT=20091224  
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File 351:Derwent WPI 1963-2009/UD=201001  
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File 484:Periodical Abs Plustext 1986-2010/Jan 07  
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File 492:Arizona Repub/Phoenix Gaz 19862002/Jan 06  
(c) 2002 Phoenix Newspapers

File 587:Jane`s Defense&Aerospace 2009/Dec W3  
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File 608:MCT Information Svc. 1992-2010/Jan 08  
(c) 2010 MCT Information Svc.

File 609:Bridge World Markets 2000-2001/Oct 01  
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File 610:Business Wire 1999-2010/Jan 08  
(c) 2010 Business Wire.

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(c) 2010 PR Newswire Association Inc

File 621:Gale Group New Prod.Annou.(R) 1985-2010/Nov 25  
(c) 2010 Gale/Cengage

File 635:Business Dateline(R) 1985-2010/Jan 08  
(c) 2010 ProQuest Info&Learning

File 636:Gale Group Newsletter DB(TM) 1987-2010/Dec 09  
(c) 2010 Gale/Cengage

File 645:Contra Costa Papers 1995- 2009/Dec 24  
(c) 2009 Contra Costa Newspapers

File 647:UBM Computer Fulltext 1988-2010/Jan W1  
(c) 2010 UBM, LLC

File 649:Gale Group Newswire ASAP(TM) 2010/Nov 26  
(c) 2010 Gale/Cengage

File 654:US PAT.FULL. 1976-2010/JAN 05  
(c) Format only 2010 Dialog

File 660:Federal News Service 1991-2002/Jul 02  
(c) 2002 Federal News Service

File 728:Asia/Pac News 1994-2005/Dec W2  
(c) 2005 Dialog

File 761:Datamonitor Market Res. 1992-2010/Jan 05  
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File 781:ProQuest Newsstand 1998-2010/Jan 08  
(c) 2010 ProQuest Info&Learning

File 810:Business Wire 1986-1999/Feb 28  
(c) 1999 Business Wire

File 813:PR Newswire 1987-1999/Apr 30  
(c) 1999 PR Newswire Association Inc

File 990:Newsroom Current Jul 01-2010/Jan 07  
(c) 2010 Dialog

File 991:Newsroom 2009 Jan 1 2009/Jul 31  
(c) 2010 Dialog

File 992:NewsRoom 2008  
(c) 2009 Dialog

File 993:NewsRoom 2007  
(c) 2009 Dialog

File 994:NewsRoom 2006  
(c) 2009 Dialog

File 995:NewsRoom 2005  
(c) 2009 Dialog

File 996:Newsroom 2004  
(c) 2009 Dialog

File 997:Newsroom 2000-2003  
(c) 2009 Dialog

Set	Items	Description
S1	330	(CLICK OR HIGHLIGHT?) (6N) (TASK OR ACTIVITY OR NODE) (20N) (DATAFLOW OR WORKFLOW OR (DATA OR WORK) ()FLOW OR COLLABORAT? OR DASHBOARD OR DASH()BOARD OR PYRAMID?) (30N) (STATUS OR UPDATE OR MILESTONE OR CHECKPOINT OR CHECK()POINT) (6N) (INFORMATION OR - DATA OR DETAILS OR CONTEXT OR CONTENT)
S2	15	S1 FROM 340,345,348,349,351

S3 315 S1 NOT S2  
S4 97 S3 NOT PY>2003  
S5 49 RD (unique items)  
? t2/3,k/all; t5/3,k/all

2/3,K/1 (Item 1 from file: 340)  
DIALOG(R)File 340:CLAIMS(R)/US Patent  
(c) 2010 IFI/CLAIMS(R). All rts. reserv.

11843728 2008-0183811  
E/Collaborative Multi-User Method and System  
Inventors: Cavett Jeffrey (US); Kotras Timothy W (US)  
Assignee: Unassigned Or Assigned To Individual  
Assignee Code: 68000  
Attorney, Agent or Firm: ABSOLUTE TECHNOLOGY LAW GROUP LLC, 135 W. WELLS  
ST., SUITE 518, MILWAUKEE, WI, 53203, US

	Publication Number	Kind	Date	Application Number	Date
	US 20080183811	A1	20080731	US 200820511	20080125
Priority Applic:				US 200820511	20080125
Provisional Applic:				US 60-897445	20070125

Non-exemplary Claims:

...5. The method of claim 1, wherein said user interface is updated to display features selected from a group consisting of tracked changes, redlined changes, highlighted changes, modified text, a modified graphical representation of data, corrected text, corrected data, an assigned score, magnetic image data, bar code data, an assigned weighted value, notations that data is subject to verification, notations that user follow-up is required, user questions, user comments, status bars, notations identifying progress in completing a collaborative individual task and notations identifying user contributions to a collaborative task.

2/3,K/3 (Item 1 from file: 345)  
DIALOG(R)File 345:Inpadoc/Fam.& Legal Stat  
(c) 2010 EPO. All rts. reserv.

61823551 Family ID: 31823552  
No. of Patents: 2; No. of Countries: 1  
No. of Legal Status: 1  
Patent Basic (No,Kind,Date): US 20020087381 A1 20020704  
Project management for complex construction projects by monitoring subcontractors in real time (English)

Author (Inventor): FREEMAN DARLENE M (US); HALVERSON MARK (US); LEWIS STACY (US); FIELY-FISHER BRONWYN (US)  
Record Type: Legal Status; Abstract; Cited Refs

Patent Family:

Patent No	Kd Date	Applic No	Kd Date	Wk Added
US 20020087381	A1 20020704	US 2000750350	A 20001229	200228 (B)
US 7031930	B2 20060418	US 2000750350	A 20001229	200616

Priority Data (No,Kind,Date):  
 US 2000750350 A 20001229

Abstracts:

...in specification or anticipates any other reason that might delay completion of construction as scheduled, the subcontractor selects from a computerized menu the appropriate new status for the subcontractor's task and provides other information relevant to the changed situation. The status change is displayed on a display device, an electronic dashboard, so as to be easily noticed, the dashboard also providing one-click links to a display showing how widespread are the problems and a display for on-line review and approval of the status change by a manager or engineer in charge of the project, who notes the status change on the display and with whatever input may be provided by the other persons notified of the status change, decides the best course of action to keep the construction on schedule.

Cited Patents:

2/3,K/4 (Item 1 from file: 348)  
 DIALOG(R)File 348:EUROPEAN PATENTS  
 (c) 2010 European Patent Office. All rts. reserv.

02747645

System for providing an interface for collaborative innovation  
 System zur Bereitstellung einer Schnittstelle für gemeinschaftliche Innovation

Systeme de fourniture d'une interface pour une innovation collaborative

PATENT ASSIGNEE:

Accenture Global Services GmbH, (8886860), Herrenacker 15, 8200 Schaffhausen, (CH), (Applicant designated States: all)

INVENTOR:

Bechtel, Michael E., 732 Arlington Avenue, NapervilleIllinois 60565, (US)  
 Kampas, Sean R., 5602 Cambridge Way, Hanover ParkIllinois 60133, (US)

LEGAL REPRESENTATIVE:

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PATENT (CC, No, Kind, Date): EP 2093679 A1 090826 (Basic)

APPLICATION (CC, No, Date): EP 2009002450 090220;

PRIORITY (CC, No, Date): US 36012 080222; US 35988 080222; US 36001 080222

DESIGNATED STATES: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LI; LT; LU; LV; MC; MK; MT; NL; NO; PL; PT; RO; SE; SI; SK; TR

EXTENDED DESIGNATED STATES: AL; BA; RS

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

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ABSTRACT WORD COUNT: 151

NOTE:

Figure number on first page: 2



LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200935	868
SPEC A	(English)	200935	26617
Total word count - document A			27485
Total word count - document B			0
Total word count - documents A + B			27485

...SPECIFICATION the logins, ratings and contributions of the user A 120A. the user subsection 820 may display the activity of the other users 120B-N. The activity display 820 may display the logins, ratings and contributions of the other users 120B-N. The user A 120A may click on the new initial items tab 822 to view the new initial item activity or the user A 120A may click on the new grape ideas tab 823 to view the new grape idea activity.

The user A 120A may click on the grape status header 816 to view data associated with the status of their ideas. The user A 120A may click on the activity header 818 to view the activity on their ideas over a period of time. The user A 120A may click on the myProfile tab in the vine tab 805 to view the data associated with their user profile.

<FIGREF IDREF=F0014>Fig. 8A</FIGREF> is a screenshot of an alternative user dashboard screen 800 displaying the my vine tab in the system of <FIGREF IDREF=F0001>Fig. 1</FIGREF>, or other systems for providing an interface for collaborative innovation. The system 100 may display the alternative user dashboard screen 800 to the user A 120A when the user A 120A clicks on the...

2/3,K/6 (Item 3 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
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01743099

System and method for managing direct mail campaigns  
Verfahren und System zur Verwaltung von Direkt-Mail-Kampagnen  
Procede et systeme pour la gestion de campagnes de marketing direct par e-mail

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PATENT (CC, No, Kind, Date): EP 1426893 A1 040609 (Basic)  
APPLICATION (CC, No, Date): EP 2003027466 031201;  
PRIORITY (CC, No, Date): US 430192 P 021202; US 446593 030528  
DESIGNATED STATES: DE; FR; GB  
EXTENDED DESIGNATED STATES: AL; LT; LV; MK  
INTERNATIONAL PATENT CLASS (V7): G06F-017/60  
ABSTRACT WORD COUNT: 133  
NOTE:

Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200424	246
SPEC A	(English)	200424	11701
Total word count - document A			11947
Total word count - document B			0
Total word count - documents A + B			11947

...SPECIFICATION close a job. The Close Job functionality is meant to provide a way for users to put a job on hold and preserve all its content. Users can filter out closed jobs in the Job List Page. Users can close any job appearing in the Job Setup Page. Users can do this at any point in any workflow (while on the Job Setup Page) described in this document. Users click the Close Job Menu Item. If the job is already closed, then the system ignores the clicked menu item. The system sets the Job Status to CLOSED. The system preserves the Task Status values of each task in the job. Note that closing a job is always reversible from within the system. The system clears the Job Setup Page and re-retrieves...

2/3,K/7 (Item 4 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2010 European Patent Office. All rts. reserv.

01607767  
ULTRASONOGRAPH, WORK FLOW EDITION SYSTEM, AND ULTRASONOGRAPH CONTROL METHOD  
ULTRASCHALLGERAT; ARBEITSFLUSSBEARBEITUNGSSYSTEM UND ULTRASCHALL-KONTROLLVE  
RFAHREN  
ECHOGRAPHE, SYSTEME D'EDITION DE FLUX DE TRAVAIL, ET PROCEDE DE CONTROLE DE  
L'ECHOGRAPHE  
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OGASAWARA, Yoichi, 2-202-17-B101, Tayuzuka, Nishinasuno-Machi, Nasu-Gun,  
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PATENT (CC, No, Kind, Date): EP 1454585 A1 040908 (Basic)  
 EP 1454585 A1 040908  
 WO 2003043501 030530  
 APPLICATION (CC, No, Date): EP 2001274774 011122; WO 2001JP10235 011122  
 DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
 LU; MC; NL; PT; SE; TR  
 EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI  
 INTERNATIONAL PATENT CLASS (V7): A61B-008/00  
 ABSTRACT WORD COUNT: 152  
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LANGUAGE (Publication,Procedural,Application): English; English; Japanese  
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CLAIMS A	(English)	200437	448
SPEC A	(English)	200437	16440
Total word count - document A			16888
Total word count - document B			0
Total word count - documents A + B			16888

...SPECIFICATION of executing an activity 23a can be set. The execution attribute can also be set on the GUI screen of the workflow system 21. The information of the attribute to be set here is represented as the TAG of an XML file. The method of the representation is preset by, for...

...automatically executed without waiting a user action"; in case of the "Manual execution", "in the workflow system operation, a user action is waited, and the activity is executed upon the action"; in case of the "Skip", "the activity is not executed in the workflow system operation, and the workflow system executes the next activity"; and in case of the "Conditional execution", "the activity can be executed, or skipped or jumped in accordance with an execution status which the activity replies in the workflow system operation".

(Setting of Attributes of Individual activity)

With the visual editor 22 stated before, attributes which each individual activity 23a has can be set. An example of the setting is shown in Fig. 33.

As shown in Fig. 33, the dialog box W15 of a GUI attribute menu which the activity 23a has is popup-displayed by the double click of the activity icon AP arranged on the workflow design screen W13, or by the selection of the "Property" item on the popup menu M7 or on the menu bar BR2. The dialog box W15 shown in Fig. 33 is a timer attribute setting menu which concerns the double-clicked activity 23a to-be-handled.

(Entry of Comment)

With the visual editor 22 stated before, a comment can be entered on the workflow design screen W13...

2/3,K/8 (Item 1 from file: 349)  
 DIALOG(R)File 349:PCT FULLTEXT

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01840668      \*\*Image available\*\*

SYSTEMS AND METHODS FOR DETECTING CLICK FRAUD

SYSTEMES ET PROCEDES POUR LA DETECTION DE LA FRAUDE AUX CLICS

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Patent and Priority Information (Country, Number, Date):

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Application: WO 2008EP10858 20081218 (PCT/WO EP2008010858)

Priority Application: US 20072576 20071218

Designated States:

(All protection types applied unless otherwise stated - for applications  
2004+)

AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE  
DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE  
KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ  
NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM ST SV SY TJ  
TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LT LU LV MC  
MT NL NO PL PT RO SE SI SK TR

(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

(AP) BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 16731

Fulltext Availability:

Detailed Description

Detailed Description

... 34 and a Secondary Click Fraud Component 35. The Click Fraud Detector  
Primary Component operates, in part, by interrogating or scanning a data  
store for data of interest. This interrogation and data review can  
be achieved using any number of querying, data mining, and data  
evaluating techniques.

[0055] In one embodiment, the primary component scans the Temporary User  
Request Storage 30 for unusual requests. Unusual requests can be  
identified by frequency of repetition of the request or the user  
belonging to a black list of known fraudsters stored in the Click  
Fraud Black List database 38. This is typically a database table where

user IDs or requesting IP addresses of known fraudsters are kept. The Click Fraud Detector Primary Component will check current entries in the Temporary User Request Storage 30 to determine if they match entries in the Click Fraud Blacklist (or prohibited activity) database 38. Update Requests from known fraudsters are eliminated. Similarly aberrant update requests are eliminated from the Temporary User Request Storage 30 and the originating user id or IP address added to the Click Fraud Blacklist 38. An administration API is provided to this Blacklist to allow operators to detect (or block) addresses or MSISDNs and take actions.

[0056] While the Click Fraud Detector Primary Component 34 focuses on generic Click Fraud indicators, such as rate of repeated user clicks per minute, the Click Fraud Detector Secondary Component 35 provides a customized Click Fraud detection facility for the Content Recommendation & Rating System 22. For example, if the Content Recommendation & Rating System 22 supports a community or collaborative based recommendation approach where users rate a recommended item, then an operator defined concurringUserCount (OCU) sets out the number of users who must agree in order for an item rating to be accepted,

[0057] In another embodiment, the Content Recommendation & Rating System 22 in question is a Personalized Search Engine where user ratings are used to promote search results. This places a high burden...

2/3,K/9 (Item 2 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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01734010 \*\*Image available\*\*

MOBILE WIDGET DASHBOARD

TABLEAU DE BORD A GADGETS MOBILES

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Patent and Priority Information (Country, Number, Date):

Patent: WO 2008131417 A1 20081030 (WO 08131417)

Application: WO 2008US61278 20080423 (PCT/WO US2008061278)

Priority Application: US 2007913352 20070423

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AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE

DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE

KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ

NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM SV SY TJ TM

TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LT LU LV MC

MT NL NO PL PT RO SE SI SK TR  
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
(AP) BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 6375

Fulltext Availability:

Detailed Description

Detailed Description

... engine 36 may also track total usage for each widget. Widget tracking may, for instance, take the form of keeping track of the kilobytes of information supplied to the widget, or the time the widget is displayed on the screen, with suitable weighting for which level of the widget is being displayed, or some combination thereof. The widget and dashboard engine 36 may also generate alerts when a widget receives an update. The widget update alert may be, but is not limited to, an audio alert, a visual alert such as a pop-up graphic appearing on the display 12, a vibration alert or some combination thereof.

[0045] The dashboard 13 and the widget icons 14, as well as the second level display of the widget 18 and the third level display of the widget 22 may all be dynamically zero-click changed, i.e., changed without user intervention. The changes may be effected by the widget and dashboard engine 36, the ad server 38 or the dashboard server 46 or by some combination thereof operating cooperatively. The changes may be responsive to observed user behavior such as, but not limited to, widget selection, lack of activity, volume or lighting adjustment, sound or voice input or some combination thereof. The changes may also, or instead, be responsive to a change in external information or context such as, but not limited to, breaking news, a change in score, a stock index reaching a predefined threshold, a commodity price reaching a predefined...

2/3,K/10 (Item 3 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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01653250 \*\*Image available\*\*

INTEGRATED DRUG DEVELOPMENT SOFTWARE PLATFORM

PLATE-FORME A LOGICIEL DE DEVELOPPEMENT DE MEDICAMENT INTEGRE

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 Patent and Priority Information (Country, Number, Date):  
 Patent: WO 200848958 A2-A3 20080424 (WO 0848958)  
 Application: WO 2007US81514 20071016 (PCT/WO US2007081514)  
 Priority Application: US 2006852374 20061016; US 2007872369 20071015  
 Designated States:  
 (All protection types applied unless otherwise stated - for applications  
 2004+)  
 AE AG AL AM AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK  
 DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG  
 KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA  
 NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM SV SY TJ TM TN  
 TR TT TZ UA UG US UZ VC VN ZA ZM ZW  
 (EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LT LU LV MC MT  
 NL PL PT RO SE SI SK TR  
 (OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
 (AP) BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW  
 (EA) AM AZ BY KG KZ MD RU TJ TM  
 Publication Language: English  
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 Fulltext Word Count: 7884  
 Fulltext Availability:  
 Detailed Description

#### Detailed Description

... receives information from the model 715, the object 717 instructing  
 access to observation data (stored at "1091obs.dat"), and the object  
 instructing access to dosing data 721 that has already been sent to  
 the workflow. The resulting information (the fit data) is  
 communicated to reporter object 723, which in turn communicates the  
 diagnostic data.

[0072] Workflow diagrams such as that shown in Figure 7H can serve to  
 orient the user, providing an overview of the tasks to be completed, as  
 well as a mechanism for navigating to the input settings for each  
 task. As shown in Figure 7H, selecting the model 715 in the Object  
 Browser 716 or in the Workflow Diagram 746 brings up the user...

...0073] The screenshot 745 of Figure 71 illustrates a more complex  
 workflow 751 displayed in accordance with an embodiment of the present  
 invention. The workflow depicted in Figure 71 fits two different  
 modes ("Base" and "Final") to a dataset (Main), and then generates  
 respective display objects ("Worksheet 1" and "Worksheet 2"). The  
 workflow then combines these display objects to form yet another  
 object of a subset of results ("Append Worksheets") into a single  
 file/view.

[0074] According to various embodiments of the present invention, users  
 can click on any workflow component to view its properties.  
 Moreover, workflows, or parts thereof, can be created, saved, and edited,

and copied, pasted, etc. into other workflows. Workflows may be saved independent of the underlying data on which they operate. Thus, a workflow can be saved, and then independently applied to different data sets.

[0075] Workflow execution can be initiated from any place in the workflow by just highlighting that component and clicking on "Execute". That is, a user can execute all, or only a portion of, any workflow. The status of operations within a workflow can be indicated to the user by visual or other cue types. For example, in one embodiment of the present invention, objects that have successfully...

2/3,K/11 (Item 4 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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01460184 \*\*Image available\*\*  
METHODS AND APPARATUSES FOR MONITORING ATTENTION OF A USER DURING A  
COLLABORATION SESSION  
PROCEDES ET APPAREILS PERMETTANT DE SURVEILLER L'ATTENTION D'UN UTILISATEUR  
PENDANT UNE SESSION DE COLLABORATION

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Patent and Priority Information (Country, Number, Date):

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Application: WO 2006US24857 20060626 (PCT/WO US2006024857)  
Priority Application: US 2005172239 20050629

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2004+)

AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM  
DZ EC EE EG ES FI GB GD GE GH GM HN HR HU ID IL IN IS JP KE KG KM KN KP  
KR KZ LA LC LK LR LS LT LU LV LY MA MD MG MK MN MW MX MZ NA NG NI NO NZ  
OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG  
US UZ VC VN ZA ZM ZW  
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LT LU LV MC NL  
PL PT RO SE SI SK TR  
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
(AP) BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM



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Fulltext Availability:  
Detailed Description

#### Detailed Description

... visual display area 910 displays content utilized during the collaboration session. In one embodiment, the content is textual, graphical, audio, and/or video. Further, the content may be annotations, conversations, and content presented during the collaboration session.

[0093] In one embodiment, the time line 920 graphically displays a timing diagram that...

...such as  $t_0$ ,  $t_i$ , and  $t_2$ . For example,  $t_0$  may represent the beginning of the collaboration session, and  $t_2$  may represent the termination of the collaboration session. In one embodiment, a marker 921 shows a current time location of the collaboration session. For example, the marker 921 associates the content displayed within the graphical display area 910 with a location of the collaboration session.

[0094] In one embodiment, the activity display 930 graphically illustrates the percentage of devices that are actively collaboration session. In this example, gradations of 100%, 50%, and 0% are shown. However, any number of intervals may be utilized without departing from the spirit or scope of the invention. In one embodiment, at times  $t_0$ ,  $t_i$ , and  $t_2$ , the activity display 930 highlights those participation percentages as milestone time periods. In one embodiment, the marker 921 shows the percentage of device participation at a particular time.

[0095] In another embodiment, the activity display 930 graphically illustrates the actual number of devices that are actively participating in the collaboration session.

[0096] Figure 10 illustrates an exemplary screen shot 1000 that shows one embodiment of the methods and apparatuses for monitoring attention of a user during a collaboration session. In one embodiment, the screen shot 1000 includes a graphical display area 1010, a time line 1020, and an activity display 1030.

[0097] In one embodiment, the visual display area 1010 displays content utilized during the collaboration session. In one embodiment, the content is textual, graphical, audio, and/or video. Further, the content may be annotations, conversations, and content presented during the collaboration session.

[0098] In one embodiment, the time line 1020 graphically displays a timing diagram that shows the duration of at least...

...the collaboration session. In one embodiment, a marker 1021 shows a current time location of the collaboration session. For example, the

marker 1021 associates the content displayed within the visual display area 1010 with a location of the collaboration session.

[0099] In one embodiment, the activity display 1030 graphically identifies devices that are actively participating in the collaboration session. In this example, pictorial representations 1031 of each device are shown. In one embodiment, a different color of the pictorial representations 1031 represents whether the device is actively participating or inactive. In another embodiment, a highlighted pictorial representation 1031 represents that the device is actively participating in the collaboration session. However, any number of pictorial and/or textual representations may be utilized without departing from the spirit or scope of the invention.

[0100] In one embodiment, at times t0, ti, and t2, the activity display 1030 highlights those devices that are actively participating as milestone time periods. In one embodiment, the marker 1021 shows the devices that are actively participating at a particular time.

[0101] In another embodiment, the activity display 930 graphically illustrates the actual number of devices that are actively participating in the collaboration session.

[0102] The foregoing descriptions of specific embodiments of the invention have been presented for purposes of illustration and description.

The invention may be applied...

2/3,K/12 (Item 5 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
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01445236 \*\*Image available\*\*  
SYSTEM AND METHOD FOR MANAGING REVIEW STANDARDS IN DIGITAL DOCUMENTS  
SYSTEME ET PROCEDE POUR GERER DES NORMES D'EXAMEN DANS DES DOCUMENTS  
NUMERIQUES

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Patent and Priority Information (Country, Number, Date):

Patent: WO 2006127198 A2-A3 20061130 (WO 06127198)  
Application: WO 2006US15652 20060425 (PCT/WO US2006015652)  
Priority Application: US 2005683741 20050523; US 2006379768 20060421

Designated States:

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2004+)

AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM  
DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KM KN KP KR  
KZ LC LK LR LS LT LU LV LY MA MD MG MK MN MW MX MZ NA NG NI NO NZ OM PG  
PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC  
VN YU ZA ZM ZW  
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LT LU LV MC NL  
PL PT RO SE SI SK TR  
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
(AP) BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English  
Filing Language: English  
Fulltext Word Count: 7838

Fulltext Availability:  
Detailed Description

Detailed Description  
... and/or combinations of algorithms are used.

[00581 In one embodiment there is an area on a graphical user interface entitled "My Worklist" which includes content tasks that are "Assigned to" a user regardless of "Status". An operation may be accomplished by a single click on the task graphic to view the task summary/history, further a double-click may be used to open the workflow options for reassigning and changing status. In alternate embodiments other algorithms and/or combinations of algorithms are used.

[0059] In one embodiment there is an area in the graphical user interface entitled "My Requests" and may include content tasks that were "requested" (via the Content Request page) by a user.

[00601 In one embodiment there is an area in the graphical user interface entitled "Filter Options" which may provide fields through which data in the page may be filtered.

[00611 In one embodiment there is an area in the graphical user interface entitled "Enable Filter" which may toggle...

2/3,K/14 (Item 7 from file: 349)  
DIALOG(R)File 349:PCT FULLTEXT  
(c) 2010 WIPO/Thomson. All rts. reserv.

00806382

METHOD FOR AFFORDING A MARKET SPACE INTERFACE BETWEEN A PLURALITY OF  
MANUFACTURERS AND SERVICE PROVIDERS AND INSTALLATION MANAGEMENT VIA A  
MARKET SPACE INTERFACE

PROCEDE DE MISE A DISPOSITION D'UNE INTERFACE D'ESPACE DE MARCHÉ ENTRE UNE  
PLURALITE DE FABRICANTS ET DES FOURNISSEURS DE SERVICES ET GESTION  
D'UNE INSTALLATION VIA UNE INTERFACE D'ESPACE DE MARCHÉ

Patent Applicant/Assignee:

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Inventor(s):

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Patent and Priority Information (Country, Number, Date):

Patent: WO 200139028 A2 20010531 (WO 0139028)  
Application: WO 2000US32308 20001122 (PCT/WO US0032308)  
Priority Application: US 99444773 19991122; US 99444798 19991122

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE  
ES FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV  
MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT  
TZ UA UG UZ VN YU ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 170977

Fulltext Availability:

Detailed Description

Detailed Description

... with an embodiment of the present invention. In operation 702,  
information is received from at least one service provider utilizing a  
network. This information includes information relating to the  
service provided by the service provider. Also received utilizing the  
network is information from at least one manufacturer in operation 704.  
This...

...the manufacturer offerings and the service and manufacturer offerings  
information are utilized to manage installations in operation 708.

In an embodiment of the present invention, collaboration between  
the matched service provider and the manufacturer may also be managed. In  
such an embodiment, the management of collaboration may include  
facilitating the transmitting of information between the matched  
service provider and the manufacturer utilizing the network. In an aspect  
of this embodiment, a collaborative planning tool may be provided  
for managing the collaboration between the matched service provider  
and the manufacturer.

In another embodiment of the present invention, milestone based  
project planning may be facilitated between the matched service provider  
and the manufacturer. In a further embodiment, the manufacturer offerings  
of the matched manufacturer...

...may be displayed to the matched manufacturer utilizing the network.

30

In an aspect of the present invention, the information of the  
manufacturer may include information relating to the availability

of the manufacturer offerings. In such an aspect, the service provider may be notified of the availability of the manufacturer offerings...

2/3,K/15 (Item 1 from file: 351)  
DIALOG(R)File 351:Derwent WPI  
(c) 2010 Thomson Reuters. All rts. reserv.

0012808439  
WPI ACC NO: 2002-665511/200271  
XRPX Acc No: N2002-526487  
Subcontractor activity management method in satellite construction project, involves indicating changed status of subcontractor in status indicator provided on electronic dashboard  
Patent Assignee: FIELY-FISHER B (FIEL-I); FREEMAN D M (FREE-I); HALVERSON M (HALV-I); LEWIS S (LEWI-I); GEN ELECTRIC CAPITAL CORP (GENE)  
Inventor: FIELY-FISHER B; FREEMAN D M; HALVERSON M; LEWIS S  
Patent Family (2 patents, 1 countries)  
Patent Application  
Number Kind Date Number Kind Date Update  
US 20020087381 A1 20020704 US 2000750350 A 20001229 200271 B  
US 7031930 B2 20060418 US 2000750350 A 20001229 200627 E

Priority Applications (no., kind, date): US 2000750350 A 20001229

Patent Details  
Number Kind Lan Pg Dwg Filing Notes  
US 20020087381 A1 EN 12 7  
Original Publication Data by Authority

Argentina

Assignee name & address:  
Original Abstracts:

...in specification or anticipates any other reason that might delay completion of construction as scheduled, the subcontractor selects from a computerized menu the appropriate new status for the subcontractor's task and provides other information relevant to the changed situation. The status change is displayed on a display device, an electronic dashboard, so as to be easily noticed, the dashboard also providing one-click links to a display showing how widespread are the problems and a display for on-line review and approval of the status change by a manager or engineer in charge of the project, who notes the status change on the display and with whatever input may be provided by the other persons notified of the status change, decides the best course of action to keep the construction on schedule.

Claims:

5/3,K/1 (Item 1 from file: 1)  
DIALOG(R)File 1:ERIC  
(c) format only 2010 Dialog. All rts. reserv.

0009760034 ERIC NO.: ED432292  
Top 20 Collaborative Internet-Based Science Projects of 1998:  
Characteristics and Comparisons to Exemplary Science Instruction.

Berg, Craig A.; Jefson, Cristy  
8pp.

March 1999 (19990300)

NOTES: In: SITE 99: Society for Information Technology & Teacher Education  
International Conference (10th, San Antonio, TX, February 28-March 4,  
1999); see IR 019 584.

This paper utilizes the characteristics of model science instruction to identify exemplary Internet-based science collaborations. The filter for attaining "exemplary" status was based on state and national standards-generating initiatives and the corresponding implications for appropriate student activity in science classrooms. Twenty examples of online collaboration are identified, described, and used as models that contain the basic components of effective online science collaboration. These models are separated into the following categories: (1) observation and sampling of wildlife (self-collected data); (2) observation and sampling of wildlife (scientist-collected data); (3) observation and sampling of self-characteristics; (4) sampling and analysis of environmental data; (5) resource awareness and consumption; (6) content-related, participant-dependent calculation; and (7) problem solving and engineering. The models also serve to highlight ancillary features that make online collaborative investigations even more effective. (Author/MES)

5/3,K/2 (Item 1 from file: 13)  
DIALOG(R)File 13:BAMP  
(c) 2010 Gale/Cengage. All rts. reserv.

00744371 Supplier Number: 24908877 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
Mid-market magnetism  
(Supply chain management software vendors have targeted mid-sized firms)  
Article Author(s): Dilger, Karen Abramic  
MSI, v 19, n 7, p 12  
July 2001  
DOCUMENT TYPE: Journal ISSN: 0748-948X (United States)  
LANGUAGE: English RECORD TYPE: Fulltext  
WORD COUNT: 735

(USE FORMAT 7 OR 9 FOR FULLTEXT)

TEXT:

...to "part numbers," while another uses the term SKU.

PkMS Pronto includes three new add-on modules. The Warehouse Control Center graphically represents ongoing facility activity using charts and graphs to highlight bottlenecks and plant processes. Asset Management combines elements of performance management and activity-based costing by focusing on usage figures regarding people, teams, and equipment. Pronto Exchange is a collaboration tool for outbound processes, including functionality for order status and alert messaging. "Pronto Exchange can be used to Web crawl to sites, such as UPS or FedEx, to obtain data and pull it back to the user," says Conroy.

Conroy estimates the total cost of the system to be in the \$250,000 range,

with...

5/3,K/3 (Item 1 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2010 ProQuest Info&Learning. All rts. reserv.

01825011 04-76002  
Product evaluation: Data input and forms processing  
Hall, Geoff  
Document World v4n3 PP: 18-26 May/Jun 1999  
ISSN: 1025-9228 JRNL CODE: DCMW  
WORD COUNT: 3165

...TEXT: has just launched its Genesis Edition aimed at the low volume user.

INPUTACCEL EZ 2.2 FROM INPUT SOFTWARE

(Table Omitted)

Input Software has approached data capture and forms processing from the top down. Having established InputAccel as a totally scalable system with no limit on the numbers of users or...

...pronounced in American 'ee-zee' (easy), it has made the process just that. The system provides a wizard that takes you through setting up the workflow. The result is the ability to place an icon on the desktop that runs the capture and recognition process at a click. They call this 'Point-Click-Scan'. So a small company with a limited number of forms can set up the system using an icon for each different form.

For those who want to be more involved in the process, the workflow 'IA/Watchdog', lists each task in the process and allows you to run the tasks manually or automatically. If you want to check the recognition status of poor quality forms, then just make the next task after recognition manual.

One limit to EZ is recognition. Only full text and zonal OCR are available. However, multiple ICR and OMR modules are available...

5/3,K/4 (Item 1 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2010 Gale/Cengage. All rts. reserv.

08728276 Supplier Number: 75602417 (USE FORMAT 7 FOR FULLTEXT)  
Macromedia Unveils Sitespring.  
PR Newswire, pNA  
June 18, 2001  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 929

... Custom reports and advanced search for drill-down visibility  
-- E-mail notifications for alerts and updates

-- Quick start project cloning and import from Microsoft Project  
 -- Workflow integration with Macromedia Dreamweaver(R) 4 and  
 Macromedia  
 Dreamweaver UltraDev(TM) 4 software applications  
 -- Cross-browser and cross-platform support  
 -- File management  
 -- Transparent file versioning  
 -- Requires no change from how teams already access files  
 -- One-click archiving to create snapshots of project files  
 -- Associate files with tasks: launch, edit, and save the correct  
 file  
 -- Search for files by associated task  
 -- Works with any design and/or development product  
 -- Automated disk management utilities keep disk space free  
 -- Integrated version comments with Dreamweaver and UltraDev  
 -- Client communications  
 -- Fully customizable templates for secure, professional project  
 sites  
 -- Client interface for tasks, requests, file upload and project  
 status  
 facilitates getting client deliverables on time  
 -- Online review and approval including automatic approval logging  
 -- Manage project site content directly from the browser  
 -- Unlimited client user accounts at no extra charge  
 "It is really nice to be able to have an overview of an...

5/3,K/5 (Item 2 from file: 16)  
 DIALOG(R)File 16:Gale Group PROMT(R)  
 (c) 2010 Gale/Cengage. All rts. reserv.

08395936 Supplier Number: 71242621 (USE FORMAT 7 FOR FULLTEXT)  
 CorVu Announces RapidScorecard; A Revolution in Balanced Scorecard  
 Automation.  
 PR Newswire, pNA  
 March 6, 2001  
 Language: English Record Type: Fulltext  
 Document Type: Newswire; Trade  
 Word Count: 581

... then encode an understanding of the evolving business."  
 The application includes various standard reports organized into  
 three main categories, as follows:  
 \* Performance Reports - designed to highlight performance  
 results by  
 Company, Business Unit, Perspective, Objective, or any combination  
 thereof.  
 \* Initiative Reports - designed to highlight project  
 status and activity  
 associated with Strategic Initiatives.  
 \* Alignment Reports - designed to highlight the alignment, or  
 lack  
 thereof, between activities and strategy.  
 About CorVu Corporation  
 CorVu Corporation is a global provider of enterprise business  
 performance management, e-business intelligence and Balanced Scorecard



solutions. Combining OLAP query and reporting, executive dashboard alerts and forecasting, CorVu's solutions offer information analysis capabilities that empower our customers to achieve strategic objectives and improve business performance. CorVu provides a comprehensive business performance management solution to over 2500 customers, including leading suppliers in manufacturing, telecommunications, insurance, financial services, banking, aerospace, transportation, healthcare and the public sector. For more information, please visit [www.corvu.com](http://www.corvu.com) or call 800.610.0769.

\* CorVu is a registered trademark of CorVu Corporation.

5/3,K/6 (Item 3 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2010 Gale/Cengage. All rts. reserv.

08061799 Supplier Number: 67177818 (USE FORMAT 7 FOR FULLTEXT)  
eDeploy.com Announces Availability of eDeploy Version 1.5.  
Business Wire, p2280  
Nov 21, 2000  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 498

... set of eLearning modules  
addressing the features and use of eDeploy Version 1.5.

- Enhanced Security Features allow project managers to control users' access to information screens as well as to posted project documents.

- Project Setup Wizards dramatically streamline the efforts needed to populate a new eDeploy project with task information.  
. The "template library" is of great value for standardizing project work processes and promoting the use of "best practices."

- New Project Site Collateral List is a valuable feature for project teams who need to constantly monitor site collateral files (such as site surveys) as they are posted.

- New Site Dashboard enables a user to click on a site name in a site list, and see at a glance the task status and alerts for this site.

- New Notification Occurrences extends the range of alert conditions that a

project manager can monitor. New options bring increased flexibility and granularity in meeting a project's specific alert needs.

- My Shortcuts shortens the amount of drill-down to get to particular information screens. It is especially helpful for those users who consistently access selected eDeploy screens.
- My Task List is a new dashboard display that shows all...

5/3,K/7 (Item 4 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2010 Gale/Cengage. All rts. reserv.

07795364 Supplier Number: 65126342 (USE FORMAT 7 FOR FULLTEXT)  
Virage Launches ControlCenter(TM) Along With German and Italian Speech to  
Text Engines for Virage AudioLogger(TM).  
PR Newswire, pNA  
Sept 11, 2000  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 1037

... remotely controls and automates the SmartEncode(TM) process of simultaneous video capture, encoding and indexing for multiple VideoLogger applications. ControlCenter provides centralized, remote control over content coming into each VideoLogger. By managing multiple VideoLoggers concurrently, ControlCenter builds enormous efficiencies into the video streaming media workflow. ControlCenter allows users to scale their VideoLogger environment without adding overhead. ControlCenter has been engineered to allow maximum orchestration of mission-critical events with minimal online navigation. Single-point administration allows immediate access and control of a network of VideoLogger activity with the click of a mouse.

ControlCenter provides complete flexibility in scheduling events. Users can orchestrate one or more events on multiple VideoLoggers and specify detailed properties for each session. Variable timeline views show the availability of VideoLogger resources at any time. Built to accommodate real life workflow variations, ControlCenter delivers maximum automation, flexibility and control.

#### Proactive, Real-Time Status Monitoring

The ControlCenter interface provides a wealth of information at a glance. Video capture thumbnails display incoming feeds in real time and instantly reveal the status of any VideoLogger across the network. The Calendar and Event windows make it easy to program, navigate and locate scheduled events. Detailed log files for...

5/3,K/8 (Item 5 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2010 Gale/Cengage. All rts. reserv.

07450984 Supplier Number: 62663812 (USE FORMAT 7 FOR FULLTEXT)  
Anthem Blue Cross and Blue Shield in New Hampshire And Confer Software

Collaborate to Offer Proven Health Management Solution.

PR Newswire, pNA

June 12, 2000

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 1166

... living

The CHF health management application precisely mirrors Anthem BCBS' existing telephonic nurse care manager model. Features of the application, based on clinical processes and content provided by Anthem BCBS, include:

- User-friendly interface with daily, automated "To-Do" lists based on

- stage of workflow, which are then routed to appropriate administrative

- and clinical staff members

- Comprehensive task history which documents all patient activity at

- every workflow stage

- Embedded counseling recommendations with point-and-click fields for

- documenting interventions, submitting changes in status and assigning

- readiness to change

- Customized member summary reports for distribution to the patient's

- provider outlining member responses to questionnaires and telephone interview, as...

5/3,K/9 (Item 6 from file: 16)

DIALOG(R)File 16:Gale Group PROMT(R)

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05725560 Supplier Number: 50201578 (USE FORMAT 7 FOR FULLTEXT)

Netmosphere Delivers Team-Based Project Management for the Enterprise

PR Newswire, p727LAM053

July 27, 1998

Language: English Record Type: Fulltext

Article Type: Article

Document Type: Newswire; Trade

Word Count: 823

... making it easier to see where a individual might be overloaded.

Flexible, Real-Time Communication

ActionPlan 3.0 lets team members communicate and share project information in a number of convenient ways. With automatic email notification and off-line access, ActionPlan makes it easy for team members to communicate schedules, tasks, to-do lists, updates, past-due items, and other project related information.

With a Java-based, thin-client architecture, ActionPlan uses a web server to distribute and update ActionPlan thin-clients. The thin-client components of the application offer the convenience of point-and-click web page distribution with the high interactivity of a desktop application.

#### Pricing & Availability

ActionPlan 3.0 is available now and can be purchased directly from the company. Pricing for the collaboration server is \$10,000 for a department, serving up to 500, or \$25,000 for an enterprise server, which serves over 2,000. ActionPlan clients are \$200. HotSheet (task list) clients are available for \$50.

#### About Netmosphere

Netmosphere develops and markets software to support geographically dispersed project teams. Netmosphere products enable teams of people...

5/3,K/10 (Item 7 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2010 Gale/Cengage. All rts. reserv.

04689702 Supplier Number: 46902735 (USE FORMAT 7 FOR FULLTEXT)  
Domino.Merchant Transforms a Web Site Into a Powerful Selling Engine  
PR Newswire, p1118NEM052  
Nov 18, 1996  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 985

... interactive communications, collaboration and workflow to create Web applications. Domino.Action works with Domino to provide a solution for easily creating and deploying innovative and content-rich Web sites. Domino.Merchant enables companies to go beyond a basic Internet storefront and leverage the data collected from their commerce site. Through Domino.Merchant's point-and-click user interface, companies will be able to:

- create product catalogs with multimedia content,
- update catalog and pricing information

in a multi-user setting,

- track sales activity via built-in reports,
- host customer feedback and suggestion forums,
- build workflow

applications to support fulfillment of the products sold.

In addition, Domino.Merchant will create a sophisticated commerce platform for Lotus Business Partners and third-parties...

5/3,K/11 (Item 8 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
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04555684 Supplier Number: 46695758 (USE FORMAT 7 FOR FULLTEXT)  
Reach crafts WorkMan upgrade  
PC Week, p014  
Sept 9, 1996  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Tabloid; General Trade  
Word Count: 279

WorkMan 2.1 gives users point-and-click routing and tracking of

files, documents and Web links from Exchange, Windows 95, Netscape Communications Corp.'s Navigator and other browsers. It also allows users to create workflow tasks that track and manage documents and URLs.

The upgrade's new Route & Track application agents allow users to create and modify workflow processes from these and other platforms, including PC Docs Inc.'s document management system and Exchange.

Users can access the workflow applications by clicking on E-mail messages or via the WorkMan task-list folder entry in Exchange, said Reach officials in Sunnyvale, Calif. Version 2.1 can also route Exchange folders and E-mail messages.

The upgrade, which starts at \$300, features a complete history of the workflow and a graphical status view of users in the process, said officials.

Tight integration with PC Docs allows users to select documents and choose between predefined workflow routes or the creation of ad hoc routing. It also updates the activity log with information about who currently has a document and provides time and date stamps on those documents.

"Its graphical interface lets users easily create and modify workflows," said Lawrence Chew, a beta tester and analyst with Harris Corp., in Redwood Shores, Calif.

The WorkMan WorkMap is a robust visual workflow process tool that lets administrators create enterprisewide workflows without additional scripting. Reach also offers a WorkMan developer's kit for creating agents that integrate WorkMan...

5/3,K/12 (Item 9 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2010 Gale/Cengage. All rts. reserv.

04291529 Supplier Number: 46289172 (USE FORMAT 7 FOR FULLTEXT)  
Novell readies workflow application for GroupWise  
PC Week, p120  
April 8, 1996  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Tabloid; General Trade  
Word Count: 255

... its GroupWise group-collaboration software.

Co-developed with FileNet Corp., GroupWise Workflow enables users to automate the process of routing E-mail, calendaring and scheduling information, and voice mail to multiple co-workers, Novell officials said at NetWorld+Interop here last week.

The software gives users a point-and-click interface for constructing complex workflows. Users can drag and drop icons that represent people and objects in the system to the program's Workflow Canvas and draw arrows to link the icons in sequential or conditional routes, said officials from Novell's Groupware division, in Orem, Utah.

The workflow program is tightly integrated with the GroupWise in-box, which makes participation in the workflow as easy as using E-mail, officials said. Users defined in a workflow will automatically receive a message in their in-boxes when it's time for them to complete a task in the group project.

"As E-mail systems become more complex, users want more functionality," said Mark Levitt, an analyst at International Data

Corp., in Framingham, Mass. "Workflow is one of those obvious applications that leverages the E-mail infrastructure."

The GroupWise address book will allow workflow authors to assign individual people to each step. The authors can attach objects required for the task and establish security levels for each individual in the workgroup, officials noted. The author can also check the status of the work in progress and work completed by each participant.

Pricing for GroupWise Workflow has not been set.

5/3,K/13 (Item 10 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2010 Gale/Cengage. All rts. reserv.

04284619 Supplier Number: 46278701 (USE FORMAT 7 FOR FULLTEXT)  
GROUPWISE WORKFLOW INCREASES THE EFFICIENCY OF WORK PROCESSES  
PR Newswire, p0402SJTU006  
April 2, 1996  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 748

... our customers a compelling reason to implement a workflow solution."

"GroupWise WorkFlow is an absolute world-beater of a product," said Connie Moore, director, Giga Information Group, a leading Information Technology Advisory Group. "When we look back two years from now, the GroupWise WorkFlow introduction will be a defining moment in...

...developed with FileNet Corporation, GroupWise WorkFlow enables GroupWise users to become workflow authors. With its point-and-click user interface, GroupWise WorkFlow makes constructing a workflow as simple as dragging icons, which represent people and objects in the system, to the WorkFlow Canvas and drawing arrows to link these icons in sequential, broadcast or conditional routes.

The GroupWise address book allows workflow authors to assign people to each workflow step. With each step in the work process, the author can include detailed instructions, attach documents and objects required to complete the task, define specific responses and establish security levels for each participant. Once a workflow is implemented, the author can receive the status of the work in process, which shows exactly who has the work and what they've done with it.

#### Participating in a WorkFlow

GroupWise WorkFlow, tightly integrated with GroupWise, makes participating in workflows as simple as using E-mail. If a user has been defined as a workflow participant, they will receive a message in their Universal In Box when it is time for them to participate in a particular work process. Opening the message displays the assignment in a simple dialog box with instructions for completing the task. Users can respond to the workflow author, asking questions and making clarifications, and when the task is completed, GroupWise WorkFlow automatically routes the message to the next participants.

For more information about GroupWise WorkFlow, customers can call 800-NET-WARE or visit Novell's home page at <http://www.novell.com>.

Novell is the world's leading network software provider. Novell

software provides the infrastructure for a networked world, enabling our customers to connect with other people and the information they need, anytime and anyplace. Novell partners with other technology and market leaders to help customers make networks a part of their everyday lives.

NOTE...

5/3,K/14 (Item 11 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2010 Gale/Cengage. All rts. reserv.

03030149 Supplier Number: 44117514 (USE FORMAT 7 FOR FULLTEXT)  
ALGOR INTRODUCES MAJOR BREAKTHROUGH IN HUMAN INTERFACING FOR MECHANICAL  
DESIGN AND ANALYSIS COMPUTER SOFTWARE  
PR Newswire, p1  
Sept 24, 1993  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 629

... flow charts to walk users  
step-by-step through the process of optimizing and engineering their  
designs using Algor software.

When an engineer selects a task  
from the primary Roadmap, a screen  
for the task displays a flow chart of the process in Algor. A  
click  
of the mouse at any step automatically takes the user into the  
appropriate Algor feature required to perform that step.

Each Roadmaps screen incorporates "billboards,11 context  
- sensitive,  
task  
-oriented help windows that explain each step of the process. A  
"dashboard" at the bottom of the screen shows function keys and  
current status information  
. "Forks in the road" at key engineering  
decision-making points identify possible options and the ramification  
of each. There are many helpful "sign posts" to...

5/3,K/15 (Item 1 from file: 20)  
DIALOG(R)File 20:Dialog Global Reporter  
(c) 2010 Dialog. All rts. reserv.

28055581 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
Research and Markets: Advances in Enzyme Technology for the Food Industry  
M2 PRESSWIRE  
March 12, 2003  
JOURNAL CODE: WMPR LANGUAGE: English RECORD TYPE: FULLTEXT  
WORD COUNT: 1280

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... Of course, foods often contain naturally-occurring enzymes that

cause the foods to degrade. It may be possible to develop ingredients that inhibit this enzymatic activity and improve shelf life and other sensory qualities of a product.

An Opportunity To Learn

Now you can have an opportunity to learn more about...

... universities, companies and government research labs that will help you advance your company's own work in the field. This report reviews key processes and highlights significant data, including the potential applications for each process, its status of development, and when it will be commercially available.

You'll also learn how to take advantage of these technologies, either through licensing or other collaborative arrangements, so that you can use them commercially before your competitors do.

Learn about several developments, including:

A canning process that uses lower-than-normal...

5/3,K/16 (Item 2 from file: 20)  
DIALOG(R)File 20:Dialog Global Reporter  
(c) 2010 Dialog. All rts. reserv.

28055579 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
Research and Markets: Advances in Nutritional and Fat Reduction  
Technologies  
M2 PRESSWIRE  
March 12, 2003  
JOURNAL CODE: WMPR LANGUAGE: English RECORD TYPE: FULLTEXT  
WORD COUNT: 1276

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... health-promoting benefits.

A nontransgenically modified soybean that yields oil that does not have to be hydrogenated.

A new milk concentrate that demonstrates anti-inflammatory activity.

A prototype process that separates whey into at least five proteins economically.

A corn that yields a salt substitute that has no sodium.

Advances in Nutritional and Fat Reduction Technologies reviews significant developments in the field, discussing potential applications and the status of development, so that you'll also learn how to take advantage of these new technologies through licensing or other collaborations. Contact information is provided for key researchers. This report will help you track new nutritional and fat-reduction developments and contact experts with whom you can collaborate on innovative research. Order Advances in Nutritional and Fat Reduction Technologies and tap into innovations that will help you meet your product development goals.

For a complete index of this report click on  
<http://www.researchandmarkets.com/reports/19657>

Report Index:

1. Executive Summary

Introduction The continuing need for more healthy foods Methodology and scope of report...



5/3,K/17 (Item 3 from file: 20)  
DIALOG(R)File 20:Dialog Global Reporter  
(c) 2010 Dialog. All rts. reserv.

21451362 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
RosettaNet Achieves Record Number High Technology B2B Production  
Implementations On a Global Scale  
BUSINESS WIRE  
February 26, 2002  
JOURNAL CODE: WBWE LANGUAGE: English RECORD TYPE: FULLTEXT  
WORD COUNT: 1145

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... and responses related to Work-in-Process (WIP) on the factory floor, allowing for flexibility of operations through improved visibility into supplier WIP.

#### Supply Chain Information Management

The Collaborative Forecasting Program, led by STMicroelectronics and Texas Instruments, and the iHub initiative, sponsored by Cisco Systems, focused on automating the forecasting process and synchronizing supply and demand.

As a result of these Milestone Programs, trading partners improved the management of inventories, product turns and on-time delivery during the implementation of multiple PIPs in a production environment.

In addition to the Milestone Program activity in 2001, RosettaNet also focused its efforts on a global expansion strategy with the official launch of RosettaNet Malaysia. Other key highlights included the formation of the RosettaNet Solution Provider Board (SP) and formal roll-out of the RosettaNet Ready(TM) software compliance program.

To learn more about RosettaNet's Milestone Programs or to participate in ongoing consortium initiatives, visit the RosettaNet Web site at [www.rosettanet.org](http://www.rosettanet.org).

#### About RosettaNet

RosettaNet is an independent, non-profit consortium dedicated to the collaborative development and rapid deployment of open Internet-based business standards that align processes within the global high-technology trading network.

More than 400 companies representing more than \$1 trillion in annual information technology, electronic components and semiconductor manufacturing revenues currently participate in RosettaNet's Standards development, strategy and implementation activities. A complete list of member companies and more information on RosettaNet is available at [www.rosettanet.org](http://www.rosettanet.org).

--30--JE/np\* KT/np EZ/np CONTACT: RosettaNet Lynda Yana, 714/480-3806  
[lynda.yana@rosettanet...](mailto:lynda.yana@rosettanet...)

5/3,K/18 (Item 4 from file: 20)  
DIALOG(R)File 20:Dialog Global Reporter  
(c) 2010 Dialog. All rts. reserv.

10057366  
WomenCONNECT.com Publishes Detailed Status Report On Gays & Lesbians

'Coming Out' in the Workplace

PR NEWSWIRE

March 14, 2000

JOURNAL CODE: WPRW LANGUAGE: English RECORD TYPE: FULLTEXT

WORD COUNT: 323

... came out" are seen as better managers \* Positive & negative personal experiences from gays & lesbians who revealed sexual orientation at work WHO provided expert opinion and data to the status report? Ellen Uzelac is a womenCONNECT.com contributor who writes on business, workplace and work/family issues. She is a former national correspondent and West...

...chief for the Baltimore Sun and is the author of Lost & Found: A Journey Through Grief. Shelley Alpern, The Equality Project Selisse Berry, The Pride Collaborative Paula Ettlebrick, National Gay & Lesbian Task Force Policy Institute Grant Luckenbill, Gay & Lesbian Values Index Shelly Meyers, Meyers Pride Value Fund WHEN will the status report be posted? Beginning Wednesday, March 15, 2000 The report can also be found using womenCONNECT.com's "search" feature HOW can visitors read the status report? Simply visit www.womenCONNECT.com, locate the report and click WHERE will the status report be posted? www.womenCONNECT.com - The leading online source of business, career, and personal finance information and resources for women.

CONTACT: Sara Gilbertson, Senior Vice President, Marketing, womenCONNECT.com, 703-918-6989 or email: sgilbertson@womenconnect.com; or Wayne Henninger or...

5/3,K/19 (Item 5 from file: 20)  
DIALOG(R)File 20:Dialog Global Reporter  
(c) 2010 Dialog. All rts. reserv.

07841081 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
MAPICS: Mapics delivers integrated workflow solution  
M2 PRESSWIRE  
October 20, 1999  
JOURNAL CODE: WMPR LANGUAGE: English RECORD TYPE: FULLTEXT  
WORD COUNT: 576

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... tasks. It prompts users for activities that need to be performed, minimising the risk of error involved in finding different programs and locating the necessary information to perform a task or make a business decision. It also determines the status of work tasks and automatically activates the next task to be accomplished.

MAPICS XA Workflow is a true client/server system, which enables the application to be run in the Microsoft Windows operating system...

... supports all major databases including native support for Oracle, Sybase, Microsoft SQL Server and Lotus Notes. The database connector component allows developers to access and update any database or combination of databases within a single workflow.

This feature simplifies the task of deploying applications across multiple databases and architectures that may be employed in the

various departments or divisions of an organisation. In addition, MAPICS XA Workflow features "One-Click " Web Deployment capability. Client-server applications developed using these tools can be deployed to the web in seconds with the Application Builder. Users can have...

5/3,K/20 (Item 6 from file: 20)  
DIALOG(R)File 20:Dialog Global Reporter  
(c) 2010 Dialog. All rts. reserv.

06962961 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
MAPICS Delivers Integrated Workflow Solution; New Workflow Tool Provides  
Customers with Real-Time Application to Streamline Operations  
BUSINESS WIRE  
August 31, 1999  
JOURNAL CODE: WBWE LANGUAGE: English RECORD TYPE: FULLTEXT  
WORD COUNT: 923

(USE FORMAT 7 OR 9 FOR FULLTEXT)

... tasks. It prompts users for activities that need to be performed, minimizing the risk of error involved in finding different programs and locating the necessary information to perform a task or make a business decision. It also determines the status of work tasks and automatically activates the next task to be accomplished.

MAPICS XA Workflow is a true client/server system, which enables the application to be run in the Microsoft Windows(TM) operating...

... supports all major databases including native support for Oracle, Sybase, Microsoft SQL Server and Lotus Notes. The database connector component allows developers to access and update any database or combination of databases within a single workflow. This feature simplifies the task of deploying applications across multiple databases and architectures that may be employed in the various departments or divisions of an organization. In addition, MAPICS XA Workflow features "One-Click " Web Deployment capability. Client-server applications developed using these tools can be deployed to the web in seconds with the Application Builder. Users can have...

5/3,K/21 (Item 1 from file: 47)  
DIALOG(R)File 47:Gale Group Magazine DB(TM)  
(c) 2010 Gale/Cengage. All rts. reserv.

06359652 SUPPLIER NUMBER: 87428210 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
Preconference activities expand the ANI learning experience.(Brief Article)  
Healthcare Financial Management, 56, 6, S10(1)  
June, 2002  
DOCUMENT TYPE: Brief Article ISSN: 0735-0732 LANGUAGE: English  
RECORD TYPE: Fulltext  
WORD COUNT: 429 LINE COUNT: 00042

Patient Financial Services Conference--Magic Million-Dollar  
Bottom-Line Solutions will begin with an update of trends affecting  
patient financial services and the goals and achievements of HFMA's PFS  
Task Force. Next will be a discussion of million-dollar solutions in

the revenue cycle and practical ways participants can redesign workflow processes to take advantage of transaction standards. Highlights include developing effective communication, using technology to improve the quality and completeness of information, identifying internal and external resources to keep the budget and time line intact, and understanding ways the Health Insurance Portability and Accountability Act of 1966...

5/3,K/22 (Item 1 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c) 2010 Gale/Cengage. All rts. reserv.

0020353715 SUPPLIER NUMBER: 98718002 (USE FORMAT 7 OR 9 FOR FULL TEXT)

Advances in Enzyme Technology for the Food Industry.

M2 Presswire, NA

March 12, 2003

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 1401 LINE COUNT: 00135

... Of course, foods often contain naturally-occurring enzymes that cause the foods to degrade. It may be possible to develop ingredients that inhibit this enzymatic activity and improve shelf life and other sensory qualities of a product.

An Opportunity To Learn

Now you can have an opportunity to learn more about...

...universities, companies and government research labs that will help you advance your company's own work in the field. This report reviews key processes and highlights significant data, including the potential applications for each process, its status of development, and when it will be commercially available.

You'll also learn how to take advantage of these technologies, either through licensing or other collaborative arrangements, so that you can use them commercially before your competitors do.

Learn about several developments, including:

A canning process that uses lower-than-normal...

5/3,K/23 (Item 2 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c) 2010 Gale/Cengage. All rts. reserv.

0020353713 SUPPLIER NUMBER: 98718000 (USE FORMAT 7 OR 9 FOR FULL TEXT)

Advances in Nutritional and Fat Reduction Technologies.

M2 Presswire, NA

March 12, 2003

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 1400 LINE COUNT: 00135

... health-promoting benefits.

A nontransgenically modified soybean that yields oil that does not have to be hydrogenated.

A new milk concentrate that demonstrates anti-inflammatory

activity.

A prototype process that separates whey into at least five proteins economically.

A corn that yields a salt substitute that has no sodium.

Advances in Nutritional and Fat Reduction Technologies reviews significant developments in the field, discussing potential applications and the status of development, so that you'll also learn how to take advantage of these new technologies through licensing or other collaborations. Contact information is provided for key researchers. This report will help you track new nutritional and fat-reduction developments and contact experts with whom you can collaborate on innovative research. Order Advances in Nutritional and Fat Reduction Technologies and tap into innovations that will help you meet your product development goals.

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5/3,K/24 (Item 3 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c) 2010 Gale/Cengage. All rts. reserv.

0019772495 SUPPLIER NUMBER: 56645594 (USE FORMAT 7 OR 9 FOR FULL TEXT)

MAPICS: Mapics delivers integrated workflow solution >T.

M2 Presswire, NA

Oct 20, 1999

LANGUAGE: English RECORD TYPE: Fulltext

WORD COUNT: 646 LINE COUNT: 00059

... tasks. It prompts users for activities that need to be performed, minimising the risk of error involved in finding different programs and locating the necessary information to perform a task or make a business decision. It also determines the status of work tasks and automatically activates the next task to be accomplished.

MAPICS XA Workflow is a true client/server operating system, which enables the application to be run in the Microsoft Windows operating system...

...supports all major databases including native support for Oracle, Sybase, Microsoft SQL Server and Lotus Notes. The database connector component allows developers to access and update any database or combination of databases within a single workflow.

This feature simplifies the task of deploying applications across multiple databases and architectures that may be employed in the various departments or divisions of an organisation. In addition, MAPICS XA Workflow features "One-Click" Web Deployment capability. Client-server applications developed using these tools can be deployed to the web in seconds with the Application Builder. Users can have...

5/3,K/25 (Item 4 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB

(c) 2010 Gale/Cengage. All rts. reserv.

16378578      SUPPLIER NUMBER: 108284267      (USE FORMAT 7 OR 9 FOR FULL TEXT  
)

Threats From Inside -- Network security entails multiple layers.

Heath, Chet

VARbusiness, 43

Sept 29, 2003

ISSN: 0894-5802      LANGUAGE: English      RECORD TYPE: Fulltext

WORD COUNT: 1105      LINE COUNT: 00091

... uniform-control utility that works with security blades, host-based applications, appliance boxes or firewall/VPN software in generic server boxes. One such utility is Check Point's Smart Dashboard.

It has a GUI with a topology display, where VPN, firewall, QoS, network-address translation and personal firewall policy editors are integrated into a single application. Policies for each enforcement node are a click away. Alerts are delivered to a common point, and deployment of policies, management and upgrades are similarly efficient.

The most important mission of a coordinated, centrally managed perimeter and point-of-attack approach is to stop unauthorized insiders from accessing secure data or tapping critical data in-stream on a network. Although it won't stop spies like Aldrich Ames, John Walker or Christopher Boyce, who betray the trust of legitimate...

5/3,K/26      (Item 1 from file: 275)

DIALOG(R)File 275:Gale Group Computer DB(TM)

(c) 2010 Gale/Cengage. All rts. reserv.

02480937      SUPPLIER NUMBER: 71266790      (USE FORMAT 7 OR 9 FOR FULL TEXT)

FastTrack Schedule 7.0.(Software Review)(Evaluation)

HECK, MIKE

Macworld, 18, 4, 80

April, 2001

DOCUMENT TYPE: Evaluation      ISSN: 0741-8647      LANGUAGE: English

RECORD TYPE: Fulltext

WORD COUNT: 453      LINE COUNT: 00042

... efficient ways to build complex plans, as well as finer control over schedules. As you outline projects, you can easily assign multiple resources and view task details using a single data-entry form. The new Editable Links option determines the amount of time during which tasks can overlap or that must elapse before the next activity begins. Once you link tasks, FastTrack highlights the critical path for you.

#### Multiple Ways to Collaborate

FastTrack Schedule 7.0 bests its predecessors with improved support for collaboration. It can read the PC version's files; exchange data with Microsoft Project 2000; and when used with the \$99 FastTrack Schedule 7.0 for Palm OS, synchronize schedules with Palm organizers.

It can also convert schedules to HTML pages, but that's where its Web capabilities stop. If your clients and remote employees need to access and update real-time project data, elite.com's Web-based

project-management application, Worksolv (\$19.95 per month), may be a good alternative. Though it lacks high-end resource-management functions, the service is easy to use and promotes better communication and collaboration.

FASTTRACK SCHEDULE 7.0

Rating: \*

Pros: Quick scheduling and updating in Calendar view; improved scheduling accuracy; simple interface.

Cons: Not appropriate for very large or...

5/3,K/27 (Item 1 from file: 492)  
DIALOG(R)File 492:Arizona Repub/Phoenix Gaz  
(c) 2002 Phoenix Newspapers. All rts. reserv.

09076168

DID YOU CATCH THE NEWS TODAY?

Arizona Republic (AR) - Monday, March 17, 1997

By: David Hoyer, The Arizona Republic

Edition: Final Chaser Section: Business Computing Page: E1

Word Count: 767

...looks like a small, black pyramid and an AC adapter for the antenna.

The system installed quickly on my computer at work. It creates a task bar that sits at the top of the screen. But, like any program, it can be minimized to the Windows 95 task bar.

NewsCatcher also puts an icon near the clock on the Windows 95 task bar. Clicking on this provides the user with a series of status indicators that show, among other things, the strength of AirMedia's broadcast signal.

Once installed, NewsCatcher does its thing by itself. You can go about your computing business while NewsCatcher stands watch in the background, collecting the latest information.

AirMedia scans news and information sources on the Internet, including Reuters and Knight-Ridder, and distributes the latest information via its broadcast network.

Whenever the pyramid near your PC receives an update from AirMedia, a little icon flies across your screen to the NewsCatcher task bar. Click on it to read the update, or wait for several to collect, then read them in a handy "newspaper" view.

The icons correspond to the type of information collected. Dollar signs indicate business news, a hot-air balloon indicates entertainment news and so forth.

There's also a "remote control" feature that looks...

5/3,K/28 (Item 1 from file: 587)  
DIALOG(R)File 587:Jane's Defense&Aerospace  
(c) 2009 Jane's Information Group. All rts. reserv.

10911248

Word Count:438

RESEARCH - BAE Systems

JANE'S DEFENCE INDUSTRY (JDIR) OCTOBER 01, 2002 v.019 no. 010

Section Heading: RESEARCH

...terrain at the University of Sydney's test-range in Marulan, New South Wales. The UAVs sensed a number of artificial ground features, processed the data on board and built a real-time picture of ground activity.

"Processing, sharing and fusing the ground picture, without any central processing facility, makes decentralised networks attractive from a reliability, scalability and flexibility perspective," said Dr...

...undertaken as part of the Autonomous Navigation and Sensing Experimental Research (ANSER) programme - a three-year R&D programme that follows more than 10 years' collaboration between BAE Systems and the ACFR, under Professor Hugh Durrant-Whyte.

The tests mark a critical milestone for the ANSER team, which aims to create a 4-UAV testbed facility to further develop and demonstrate decentralised data fusion technologies. Its success highlights the important role Australia is playing in the development of technologies applicable to UAVs. The ANSER team plans further flight tests later this year.

In...

5/3,K/29 (Item 1 from file: 608)  
DIALOG(R)File 608:MCT Information Svc.  
(c) 2010 MCT Information Svc. All rts. reserv.

547606 Story Number: 9884 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
CALIFORNIA COMPUTER SERVICE ROUNDS UP THE NEWS  
David Hoyer  
Arizona Republic  
Mar 15, 1997 03:14 E.T.  
DOCUMENT TYPE: Newspaper RECORD TYPE: Fulltext LANGUAGE: English  
WORD COUNT: 0899

...TEXT: Once installed, NewsCatcher does its thing by itself. You can go about your computing business while NewsCatcher stands watch in the background, collecting the latest information.

AirMedia scans news and information sources on the Internet, including Reuters and Knight-Ridder, and distributes the latest information via its broadcast network.

Whenever the pyramid near your PC receives an update from AirMedia, a little icon flies across your screen to the NewsCatcher task bar. Click on it to read the update, or wait for several to collect, then read them in a handy "newspaper" view.

The icons correspond to the type of information collected. Dollar signs indicate business news, a hot-air balloon indicates entertainment news and so forth.

There's also a "remote control" feature that looks...



5/3,K/30 (Item 1 from file: 609)  
DIALOG(R)File 609:Bridge World Markets  
(c) 2001 Bridge. All rts. reserv.

00899965 BKJGKKC (USE FORMAT 7 FOR FULLTEXT)  
FULL: Virage unveils ControlCenter, video management product (B)  
BRIDGENEWS GLOBAL MARKETS  
Monday, September 11, 2000 11:12 GMT  
JOURNAL CODE: MAR LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT  
DOCUMENT TYPE: NEWSWIRE  
WORD COUNT: 1,236

...remotely controls and automates the SmartEncode(TM)  
process of simultaneous video capture, encoding and indexing for multiple  
VideoLogger applications. ControlCenter provides centralized, remote  
control  
over content coming into each VideoLogger. By managing multiple  
VideoLoggers  
concurrently, ControlCenter builds enormous efficiencies into the video  
streaming media workflow. ControlCenter allows users to scale their  
VideoLogger environment without adding overhead. ControlCenter has been  
engineered to allow maximum orchestration of mission-critical events with  
minimal online navigation. Single-point administration allows immediate  
access  
and control of a network of VideoLogger activity with the click  
of a mouse.

ControlCenter provides complete flexibility in scheduling events. Users  
can orchestrate one or more events on multiple VideoLoggers and specify  
detailed properties for each session. Variable timeline views show the  
availability of VideoLogger resources at any time. Built to accommodate  
real  
life workflow variations, ControlCenter delivers maximum automation,  
flexibility and control.

#### Proactive, Real-Time Status Monitoring

The ControlCenter interface provides a wealth of information at a  
glance.  
Video capture thumbnails display incoming feeds in real time and instantly  
reveal the status of any VideoLogger across the network. The Calendar...

5/3,K/31 (Item 1 from file: 610)  
DIALOG(R)File 610:Business Wire  
(c) 2010 Business Wire. All rts. reserv.

00838816 20030121021B7330 (USE FORMAT 7 FOR FULLTEXT)  
Schlumberger Announces Fourth Quarter and Full Year 2002 Results  
Business Wire  
Tuesday, January 21, 2003 20:03 EST  
JOURNAL CODE: BW LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT  
DOCUMENT TYPE: NEWSWIRE  
WORD COUNT: 3,696

...sequential revenue declines across most of the GeoMarkets, India and

Saudi Arabia posted solid double-digit revenue growth as a result of strong marine seismic activity in India, and increased well completions sales in Saudi Arabia.

Weak marine seismic activity in Malaysia/Brunei/Philippines and China was primarily responsible for lower revenues in these countries and the sequential decrease in pretax operating income.

The award of a five-year artificial lift contract for 91 wells highlighted the increasing demand for well completions services in Saudi Arabia in the quarter. This penetration of the offshore artificial lift market represented an important milestone for the GeoMarket.

#### Highlights:

-- Launched LivingModel(TM) workflow through the acquisition of Technoguide AS, developer of the industry-leading Petrel(TM) Workflow Tools. LivingModel combines Petrel software with Schlumberger expertise in seismic and simulation to significantly accelerate the seismic-to-simulation workflow. LivingModel is a complete asset...

...management. -- Commercialized the Magnetic Resonance Fluid\* (MRF) technique building on the Schlumberger leadership position in downhole magnetic resonance measurements and interpretations. The technique integrates downhole data acquisition and wellsite inversion with a multi-fluid response model to determine fluid saturations, volumes and oil viscosities. -- Launched ProVISION\* real-time reservoir steering logging...

5/3,K/32 (Item 1 from file: 613)  
DIALOG(R)File 613:PR Newswire  
(c) 2010 PR Newswire Association Inc. All rts. reserv.

00573108 20010515SFTU015 (USE FORMAT 7 FOR FULLTEXT)  
Onyx Announces Promising Phase II Clinical Results for CI-1042 (Onyx-015)  
As 'Mouthwash' for Premalignant Oral Dysplasia  
PR Newswire  
Tuesday, May 15, 2001 06:30 EDT  
JOURNAL CODE: PR LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT  
DOCUMENT TYPE: NEWSWIRE  
WORD COUNT: 621

...clinical trial for head and neck cancer and in Phase I and II

clinical trials for a number of different additional cancer indications.  
For  
more information about CI-1042 and Onyx's pipeline and activities,  
visit  
Onyx's web site at [www.onyx-pharm.com](http://www.onyx-pharm.com).

This press release contains forward-looking...

...risks and uncertainties. Actual events may differ from the company's expectations. In addition to matters described in this press release, the timeline for clinical activity, results of pending or future clinical trials and changes in the status of the company's collaborative relationships, as well as the risk factors listed from time to time in the company's periodic reports with the Securities and Exchange Commission, including but not limited to its Annual Report in Form 10-K, may affect the actual results achieved by the company.

MAKE YOUR OPINION COUNT - Click Here  
<http://tbutton.prnewswire.com/prn/11690X33016759>

SOURCE Onyx Pharmaceuticals, Inc.  
CONTACT: Helen Kim, 510-262-8737, or Betsy Rosenberg, 415-221-6044, both of  
...

5/3,K/33 (Item 2 from file: 613)  
DIALOG(R)File 613:PR Newswire  
(c) 2010 PR Newswire Association Inc. All rts. reserv.

00571963 20010514SFM103 (USE FORMAT 7 FOR FULLTEXT)  
Onyx Reports Progress with Its Lead Compound, CI-1042 (Onyx-015), in Phase I/II Clinical Development with Hepatic Artery Infusion in Colorectal Cancer Liver Metastases  
PR Newswire  
Monday, May 14, 2001 06:30 EDT  
JOURNAL CODE: PR LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT  
DOCUMENT TYPE: NEWSWIRE  
WORD COUNT: 786

...clinical trial for head and neck cancer and in Phase I and II clinical trials for a number of different additional cancer indications.  
For  
more information about CI-1042 and Onyx's pipeline and activities,  
visit  
Onyx's web site at [www.onyx-pharm.com](http://www.onyx-pharm.com).

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...risks and uncertainties. Actual events may differ from the company's expectations. In addition to matters described in this press release, the timeline for clinical activity, results of pending or future clinical trials

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MAKE YOUR OPINION COUNT - Click Here  
<http://tbutton.prnewswire.com/prn/11690X63869930>

SOURCE Onyx Pharmaceuticals, Inc.  
CONTACT: Helen Kimof Onyx, 510-262-8737, or Betsy Rosenberg, 415-221-6044, for...

5/3,K/35 (Item 1 from file: 636)  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2010 Gale/Cengage. All rts. reserv.

03693617 Supplier Number: 47968043 (USE FORMAT 7 FOR FULLTEXT)  
MCAFEE: McAfee extends leadership with new Helpdesk release  
M2 Presswire, pN/A  
Sept 9, 1997  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 899

... resolution functionality.

Ease-of-Use Enhancements McAfee HelpDesk 3.3 features a variety of user-suggested enhancements designed to facilitate more efficient caller management. Caller activity windows have been redesigned to provide more intuitive workflow. The new interface also allows helpdesk operators to conduct quick searches from within an open ticket, enabling them to quickly locate relevant details about a caller's history and status without slowing down the call process.

The EZ SQL Edition of MHD 3.3 also features the new EZ-DB Wizard. This point-and-click wizard greatly simplifies SQL database management. It provides fully automated database installation, refresh, backup, restore and administration functionality in a non-technical, Q&A wizard...

5/3,K/36 (Item 2 from file: 636)  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2010 Gale/Cengage. All rts. reserv.

03357567 Supplier Number: 46905746 (USE FORMAT 7 FOR FULLTEXT)  
LOTUS: Domino.Merchant transforms a web site into a powerful selling engine  
M2 Presswire, pN/A  
Nov 20, 1996  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 888

... management reporting.

Leveraging the Power of the Domino Server Domino.Merchant is based on Domino and Domino.Action. The Domino Web server provides interactive communications, collaboration and workflow to create Web applications. Domino.Action works with Domino to provide a solution for easily creating and deploying innovative and content-rich Web sites. Domino.Merchant enables companies to go beyond a basic Internet storefront and leverage the data collected from their commerce site. Through Domino.Merchant's point-and-click user interface, companies will be able to:

- \* create product catalogs with multimedia content,
- \* update catalog and pricing information in a multi-user setting,
- \* track sales activity via built-in reports,
- \* host customer feedback and suggestion forums,
- \* build workflow applications to support fulfillment of the products sold.

In addition, Domino.Merchant will create a sophisticated commerce platform for Lotus Business Partners and third-parties...

5/3,K/37 (Item 3 from file: 636)  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2010 Gale/Cengage. All rts. reserv.

03073386 Supplier Number: 46279596 (USE FORMAT 7 FOR FULLTEXT)  
NOVELL: GroupWise WorkFlow increases the efficiency of work processes  
M2 Presswire, pN/A  
April 3, 1996  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 695

... Memphis Tennessee. "The integration of GroupWise WorkFlow with the Universal In Box finally gives our customers a compelling reason to implement a workflow solution."

"GroupWise WorkFlow is an absolute world-beater of a product," said Connie Moore, director, Giga Information Group, a leading Information Technology Advisory Group. "When we look back two years from now, the GroupWise WorkFlow introduction will be a defining moment in developing workflow for the mass market."

#### Creating a Workflow

Jointly developed with FileNet Corporation, GroupWise WorkFlow enables GroupWise users to become workflow authors. With its point-and-click user interface, GroupWise WorkFlow makes constructing a workflow as simple as dragging icons, which represent people and objects in the system, to the WorkFlow Canvas and drawing arrows to link these icons in sequential, broadcast or conditional routes.

The GroupWise address book allows workflow authors to assign people to each workflow step. With each step in the work process, the author can include detailed instructions, attach documents and objects required to complete the task, define specific responses and establish security levels for each participant. Once a workflow is implemented, the author can receive the status of the work in process, which shows exactly who has the work and what they've done with it.

#### Participating in a WorkFlow